Pakistan Nutrition and Dietetic Society
PNDS
Established 2003

THE NUTRITION SOCIETY
Advancing Nutritional Science

1st PNDS International Conference on

Non-Communicable Diseases (NCDs)

1 - 3 November, 2019 Avari, Lahore - Pakistan

ABSTRACT BOOK

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SECTION ONE-KEYNOTE MESSAGES & SPEKAERS

Patron-In-Chief-Dr. Salma H. Badruddin

It gives me great pleasure to welcome the President of Pakistan Dr. Arif Alvi, honored guests from the UK Nutrition Society, representatives from the Government of Pakistan, my colleagues and other health professionals to the Pakistan Nutrition and Dietetic Society's first International Conference.

Non-Communicable Diseases (NCDs) are taking a heavy toll on our population at the stage of life when they are in the prime of life and productivity. It is estimated that NCDs disproportionately affect people in low- and middle-income countries. Each year, 15 million people die from a Non-Communicable Disease between the ages of 30 and 69 years; over 85% of these "premature" deaths occur in low- and middle-income countries.

In addition, a WHO report titled *Saving lives, spending less: a strategic response to NCDs*, shows that for every US$1 invested in scaling up actions to address NCDs in low- and lower-middle-income countries (LLMICs), there will be a return to society of at least US$7 in increased employment, productivity and longer life.

Thus, we felt that the need of the day was to focus on the Prevention of Non-Communicable Diseases.

My heartfelt thanks to the Conference Committee that has worked hard to bring together experts in the field of Nutrition, cardiovascular diseases, diabetes, respiratory diseases and cancer to discuss the role of the four major risk factors for Non-Communicable Diseases, namely unhealthy diet, inadequate physical activity, smoking and inappropriate alcohol use.

Our hope is that by the end of the Conference we will have a better understanding for the prevention of Non-Communicable Diseases in Pakistan. The fact that the President of Pakistan is a Health Professional will go a long way in initiating the development of a National Plan for the Prevention of Non-Communicable Diseases.

Yours Sincerely

Professor, Dr. Salma Halai Badruddin

President of The Nutrition Society
Professor Julie Lovegrove

It is an honor for me to be invited to this exciting conference, representing not just the Nutrition Society but also the University of Reading and the whole nutrition science community of the United Kingdom and Ireland. The Nutrition Society has enjoyed a pioneering role since its inception 78 years ago in promoting the global nutrition science agenda and providing leadership in world nutrition affairs, firmly establishing the Society's global appeal and historical place as a driving force for world nutrition. UK scientists and nutritionists are among the best trained in the world. They have the expertise to influence training elsewhere and thus contribute to building capacity in the nutrition field globally.

The Nutrition Society's strategic ambition is to expand its international work to help set up regional centres of excellence throughout the world to support training of the next generation of experts and a better health workforce both at home and internationally. We are looking for opportunities for Nutrition Society members to provide leadership and support in design, implementation, monitoring and evaluation of health and nutrition programmes in all countries. I feel privileged to have this opportunity to visit Pakistan to begin to explore partnership and collaboration opportunities with our colleagues here in the Pakistan Nutrition Society.

CEO The Nutrition Society UK-Mark Hollingworth

Mark Hollingsworth is the CEO of the Nutrition Society, a scientific learned society, based in London, United Kingdom, a position he has held since July 2014. Hollingsworth began his career by serving for 16 years in a variety of roles as a military officer in the Royal Air Force. Hollingsworth then developed extensive leadership experience in the non-profit sector, serving as a Director, Vice-President, Executive Director and Board Chair in Canada. This was followed by a two-year period as a visiting lecturer on Leadership at the University of Winnipeg in Canada, during which time he published two books on the basic skills of leadership. He returned to the United Kingdom in 2014 to take up his role as CEO of the Nutrition Society. Hollingsworth, in his capacity of CEO, also serves on the UK Parliamentary Scientific Advisory Committee, The Royal Society of Biology Strategic Partners Group and the UK Medical CEOs Group. He is a member of his Church's Council and serves on the Royal British Legion Committee. He was awarded CEO of The Year for life sciences in 2018 by CEO Today Magazine.

Organizing Committee Chair- Ghazala Pervez Zaman

It gives me immense pleasure to write a note for the book of abstracts of the 1st PNDS International Conference on NCD. On behalf of the organising committee, I extend my deepest appreciation to all who submitted their abstracts and my heartiest congratulations to those who have been selected for paper and poster presentations. This conference provided an interdisciplinary forum for medical and nutritional intervention for noncommunicable diseases. The conference aimed to bring together leading nutritionists and dieticians, researchers, medical professionals and research scholars to exchange and share their experiences and research results about all aspects of non-communicable diseases. The presentations showed a diversity of research topics and this conference provided an ideal platform for researchers and experts to present the latest findings and emerging interventions to work on the prevention and management of nutritional problems leading to NCDs. The research findings are a source of inspiration and motivation for further research and development. This conference was the outcome of the joint commendable efforts of all committees involved. We deeply appreciate and acknowledge the hard and selfless work of the Scientific Committee headed by Dr Romaina Iqbal for organising the programme and proceedings of the conference. We hope all have enjoyed their attendance at the conference.

Scientific Committee Chair-Dr.Romaina Iqbal

It is my great pleasure to welcome you to the 1st PNDS International Conference held in collaboration with the UK Nutrition Society.

As reflected in the theme of the conference "4X4: Four NCDs and Four Shared Risk Factors", this conference will not only provide an opportunity for the nutrition community to share their work related to NCDs but also open avenues for other health professionals to collaborate for reducing the growing burden of NCDs in Pakistan. Eminent scientists in the area of Diabetes, Cardiovascular Disease, Cancers, Lung health, Functional Foods, and Public Health will be sharing their work in this meeting in the form of oral and poster presentations. Six pre and post-conference workshops will also be conducted in the meeting with the intention of building capacity of young nutritionists/ dietitians in research as well as clinical work. Further, we will also be holding two panel discussions with different stakeholders of the community for gaining their support for this important area of health and disease.

I look forward to welcoming all you and hope that this meeting will be a great success.

Sincerely,

Romaina

Chair Scientific Committee

SCIENTIFIC PROGRAM Venue: Avari Hotel, Lahore		
Day 1: Friday 1st November 2019		
Timings	**Program**	
8:30-8:55am	**Registration Desk Open**	
9:00-11:00 am	**Carbohydrate Counting (Indus Hall)**	**Digital/E- Health & NCDs (Khorsheed Mahal)**
	Workshop Facilitators: **Moti Khan (AKU)** **Registered Dietitian Nutritionist** **AKU Trainer/Speaker/Facilitator for HCPs** **Tasnim Z. Ali RDN (USA)** Head of Nutrition Services, Wilcare Medical Center, Lahore. AADE trained level 1 Diabetes Educator (USA) CDR certified Registered Dietitian Nutritionist (USA) **Target Audience**: Nutritionist /Dietitian Diabetologist endocrinologists.	**Workshop Facilitator:** **Dr. Zakiuddin Ahmed** Project Director - RAH@H, King Saud University, Riyadh CEO, Digital Care Director Digital Health, PharmEvo Project Director, Riphah Institute of Healthcare Improvement & Safety (RIHIS) **Target Audience:** All health professionals
11:00-1:00pm	**Media Workshop/NCD Briefing for Health Journalists (Khorsheed Mahal)**	**Obesity Management Workshop** **(Indus Hall)**
	Facilitators: Dr. Romaina Iqbal, Dr.Abdul Basit, Dr. Javaid Khan, Dr.Khawar Kazmi, Mr.Robert Micheal, Fayza khan	**Facilitator:** **Mozamila Mughal,Rezzan Khan,Omer Farooq**

	Moderator: Zofeen T. Ebrahim **Target Audience:** For Health Journalists, Media, TV Press, Radio, Social Media (by Invitation Only)	**Target Audience:** Dietitians, Nutritionists, Fitness Experts, Trainers, Wellness Coaches, Health Professionals
1:00-2:00pm	**Lunch and Prayer Break**	
5:30-7:00pm	**Inaugural Session (Venue: Khorsheed Mahal)**	
5:30-5:55pm	**Guests to be seated** (Invited guests only)	
6:00-6:05pm	**Arrival of Chief Guest**	
6:05-6:10pm	**Tilawat-e-Quran** & **National Anthem of Pakistan**	
6:10-6:15pm	**Welcome Addres**s by Dr.Salma H.Badruddin (Patron-In-Chief)	
6:20-6:30pm	**Plenary**: 4 NCDs and 4 Shared Risk Factors by Dr.Romaina Iqbal (Chair, Scientific Committee)	
6:35-6:40pm	**Comments** from Ms. Fayza (Khan President PNDS)	
6:40-6:45pm	**Comments** from Prof. Julie Lovegrove (President, The Nutrition Society UK)	
6:45-6:50pm	**Vote of Thanks:** Prof. Ghazala Pervez Zaman (Chair, Organizing Committee)	
6:50-7:00pm	**Address** by the Honorable Chief Guest	
7:00-9:00pm	**Dinner**	

Day 2: Saturday 2nd November 2019	
8:00-9:00 am	**Registration Desk Open**
9:00-10:00am	**Plenary Session: (Khorsheed Mahal)**
	What makes a successful international research grant proposal? Key principles from the UKRI Global Challenges Research Fund ***Prof. Nicola M. Lowe (Professor of Nutritional Sciences)*** *Co-Director of the International Institute of Nutritional Sciences* *University of Central Lancashire, UK* **Moderator:** Tahreem Hussain
10:00-	**Tea break & Poster Presentation/ Exhibition**

10:30am		
10:30-12:30am	**Cardiovascular Diseases (Khorsheed Mahal)**	**Diabetes Mellitus (Indus Hall)**
	Chair: *Prof.Matina Zia* **Co- Chair:** *Dr. Javaid Akram(VC UHS)* **Moderator**: Tehreem Hussain	**Chair:** *Prof Dr. Khurshid Khan (President PES)* **Co-Chair:** *Dr.Hajra Ahmed(AIOU)* **Moderator**: *Saima Rasheed*
10:30-10:50am	**KeyNote Speaker:** *Prof.Dr.Khawar Kazmi (NICVD)* **CVDs in Pakistan: Challenges & Issues**	**Keynote Speaker:** *Prof. Dr. Abdul Basit (BIDE)* **Primary Prevention of Diabetes**
10:55-11:10am	**Nutrition Keynote**: *Prof. Dr. Julie Lovegrove (Reading University, UK)* **Dietary Fats & CVDs**	**Nutrition Keynote:** *Prof. Dr. Rubina Hakeem(CHE)* **Diet Quality and Diabetes**
11:15-11:25am	Free paper: *Zahin Anjum* Prevalence of hypertension disorders in females during third trimester of pregnancy.	**Keynote Speaker:** *Dr.Atif Muneer (V.President,PES)* **Nutritional remission of type 2 diabetes: Magic myths or facts**
11:30-11:40am	Free paper: *Iqra Ghufran-* Hypertension related knowledge among college students.	Free paper: *Faran Khan* Assessing the food concepts, lifestyle and dietary patterns among adults with diabetes mellitus.
11:45-11:55am	Free paper: *Zehra Parveen-* High dietary diversity score is associated with obesity in Pakistani women.	Free paper: *Saba Nadeem Dar.* Nutrition education -An effective approach to improve nutritional status of diabetic children.
12:00-12:10pm	Free paper: *Farah Syed*	Free paper: *Faiza Kamal.*

12:15-12:25pm	Association of egg yolk consumption on lipid profile after cardiovascular intervention. Free paper: *Nizwa Itrat* Association of central obesity with non-communicable diseases.	Clinic Follow up Compliance of persons with Type 1 Diabetes in Tertiary Care Hospital . Free paper: *Waqas Ahmed* Prevalence of Prediabetes and associated risk factors in overweight and obese female adults of Lahore.
12:30-1:00pm	**Poster viewing**	
1:00-2:00pm	**Lunch and Prayer Break**	
2:00-4:00pm	**Panel Discussion: (Khorsheed Mahal)** **Using a multi-sectoral approach to prevent and control NCDs in Pakistan** **Panel Experts**: Nutrition Expert (Lt.Cdr Rabia Anwer) Anti-Tobacco (Dr. Shahzad Alam), Food Industry (Dr.Nasir), Pharmaceutical (Syed Nasir, Pfizer), Lahore Chamber of Commerce (Mian Tanveer) & Consumer Protection (Mr. Nadeem Iqbal), Arif Nizami(Senior Health Journalist) **Moderator:** Amina Chughtai	
4:00-4:30pm	**Tea & Prayer Break**	
Saturday 2nd November 2019 Workshop		
"Nutrition Care Process Workshop" (Indus Hall)		
4:00 -6:00pm	**Facilitator**: Prof Dr. Rubina Hakeem **Target Participants:** Nutritionists/Dietitians/Students	
Day 3: Sunday 3rd November 2019		
8::30 - 10:00am	**Breakfast Session :** **Career Counseling for Students/Fresh Grads (Khorsheed Mahal)** **Panelists:** Prof. Ghazala Zaman, Dr.Rubina, Mark Hollongworth, Ambreen Altamash (Wellness Manager Nestle) Dr.Mehnaz Nasir,Shabnum Razi **Moderator:** Marium Khan RDN	
10:00-10:30am	**Tea & Poster Viewing**	

10:30am-12 :30pm	Chronic Lung Disease and Tobacco(Khorsheed Mahal)	Public Health (Indus Hall)
10:30-10:45am	**Chair :** *Prof. Dr. Khalid Waheed* **(President, PCS)** **Co-Chair:** *Dr.Shahzad Alam(WHO)* **Moderator** : Ayeza Umer **Keynote Speaker:** *Dr. Javaid Khan (AKUH)* **Reducing the burden of Chronic Respiratory Diseases in Pakistan**	**Chair :** *Prof. Ghazala Zaman* **Co-Chair:** *Dr.Saira Afzal(Dean,Dept.of Public Health,King Edward University,Lahore)* **Moderator:** Dr. Beenish Israr (UAF) **Keynote Speaker:** *Dr. Khalid Iqbal, Associate Professor (KMU*) **New Developments in Nutrition Epidemiology**
10:50-11:05am	*Prof Talha Mahmood* *Sheikh Zaid Hospital Lahore* **Occupational Lung Diseases**	*Dr.Saba Amjad* (Heart File) **Trans-Fats situation analysis of Pakistan**
11:10-11:25am	*Dr. Irfan Malik Associate Professor PGMI Lahore General Hospital* **Environment and our Lungs**	Free paper: *Afifa Tanveer* Improving the perceived importance of food label information-an approach to prevent chronic health conditions**.**
11:30-11:45am	*Prof. Saquib Saeed KE Medical university* **Obesity and respiratory Diseases**	Free paper: *Tansheet Jawad* Development and validation of an electronic application (Food eApp) to assess the dietary intake of adults in Karachi, Pakistan
11:50-12:05pm	**Nutrition Keynote Speaker:** *Ms. Shifa Ali (Ittifaq General Hospital)* **Nutrition Perspective for prevention and control of lung disease**	Free paper: *Sidra Raza.* Nutrition care management system in a tertiary care hospital stepping towards increased efficiency.

12:10-12:20pm **12:20-12:30pm**	Free Paper: *Dr. Hassan.* Prevalence and factors associated with respiratory systems in burden of obstetric lung disease (BOLD), Karachi, Pakistan Free Paper**:** *Zohaib Akhter.* Addressing smokeless tobacco and building research capacity in South Asia (ASTRA) (10 minutes)	Free Paper: *Beenish Khan* Breakfast Consumption affects Micronutrient Profile among Adolescent Girls. Free Paper: *Madiha Noor.* Assessment of dietary practices of adult females before and during Ramadan.
11:35-11:55am	**Tea Break**	
12:00-1:00	**Role of Nutritionists/Dietitians in Prevention & Control of NCDS – Developing an Action Plan (Khorsheed Mahal)** **Panel of Experts:** Rezzan Khan, Dr.Mahnaz Nasir , Dr. Salma Badruddin, Dr. MatIna Zia, Dr. Julie Lovegrove, Mark Hollingworth ,Dr.Fazia Ghaffar **Moderator :** Mahpara Safdar	
2:00-4:00	**Nutraceuticals/Functional Foods(Khorsheed Mahal)**	**CANCERS(Indus Hall)**
2:00-2:20pm **2:20-2:40pm** **2:40-2:50 pm**	**Chair:** *Prof. Dr. Anwar Gilani (Vice Chancellor, The Haripur University, KPK)* **Co-Chair:** **Moderator:** Dr. Mian Kamran Shareef **KeynoteSpeaker:** *Dr. Anwar Gilani (V.C Haripur University)* **ROLE OF FUNCTIONAL FOODS IN THE PREVENTION OF NCDS** **Keynote Speaker:** *Dr.Imran Pasha (UAF)* **Ameliorating the impact of cardiovascular diseases (cvds) through functional and nutraceutical foods.** **Free paper:** *Momina Shahid* Therapeutic potential of cinnamon tea against glycemic index among males and females.	**Chair:** *Dr.Rezzan Khan (Shifa International, Islamabad)* **Co-Chair:** *Dr.Somia Iqtedar (G.Sec.,Pakistan Society of Internal Medicine)* **Moderator:** Nida Jawed **KeynoteSpeaker:** *Dr. Abbas Khokhar (Assistant Professor of Oncology, Mayo Hospital, Lahore)* **Nutrition and Physical activity for Cancer Prevention** **Nutrition Keynote:** *Kehkashan Zehra(SIUT)* **Nutrition in Cancer Prevention:An update** **Free Paper**: *Sana Mehmood* Exploring probiotics encapsulated drugs to ameliorate the symptoms of colorectal cancer.

2:50-3:00 pm	**Free paper:** *Tabinda Mahmood* Anti-diabetic potential of moringa oleifera in type 2 diabetes mellitus.	**Free Paper:** *Ayesha Ali* Prevalence of Malnutrition in the Newly Diagnosed Pediatric Patients at Shaukat Khanum Memorial Cancer Hospital and Research Centre Lahore.
3:00: 3:10pm	**Free paper** : *Beenish Israr* Phytochemicals from plant sources: way forward to reduce hypertension.	**Free Paper:** *Dr.Fazia Ghaffar* Dietary and socio demographic factors contributing to gastrointestinal cancers among the Pashtun population of Khyber Pakhtunkhwa
3:10-3:20 pm	**Free paper**: *Zara Butt* Nutri Potential of chia seeds (salvia hispanica) against glycemic response in healthy adults.	**Free Paper:** *Fatima Hasan* Identifying perceived barriers and facilitators of physical activity among adolescent girls.
3:20-3:30pm	**Free paper :** *Mohsina Nasim* Development and organoleptic evaluation of wheat-lotus root composite flour for hypertensive patient.	**Free Paper:** *Hasiba Munir* Dietary habits of university going female students in comparison with the guidelines of my pyramid.
3:30-4:00 pm	**Tea Break**	
4:00-6:00 pm	**General Public Awareness Session and Vote of Thanks (Venue: Khorsheed Mahal)**	
4:00-5:00 pm	**What to eat and what not to eat ,If I have to prevent or manage non-communicable Disease"** (Diabetes, High Blood Pressure, Heart diseases, Cancer, Obesity) **Speakers/Facilitators/Expert**: • Saima Rasheed (DM) • Syeda Fizza Batool (CVD) • Rashida Javaid(SKMC) • Yumna Chatta (Obesity)	
5:00 -6:00 pm	**Award for best poster and oral presentations:** Dr. Salma Badruddin, Dr. Julie Lovegrove and Mark Hollingworth **Vote of Thanks**: Dr. Romaina Iqbal **Moderator:** Dr. Ghazala Rafique	
Tea: 6:00-6:30 PM		

Sunday 3rd November'19 Post Conference Workshops	
Workshop: Research Methodologies **My Nutrition Research Kit "Linking study design and statistical analysis plan"**	
4:00-6:00 pm	**Facilitator: Dr. Khalid Iqbal, Associate Professor, Khyber Medical University** **Target Audience:** nutritionists, dietitians ,researchers ,food technologists, health professionals , students etc.

KEY NOTES

Scientific Session on Cardiovascular Diseases-CVD in Pakistan: Issues and Challenges-Khawar Kazmi

Head Dept. of preventive cardiology
National Institute of cardiovascular diseases, Karachi

Cardiovascular diseases (CVD) are currently the leading cause of death and disability in both the developed and developing world. The global burden of this ailment will further compound over the next decade and the World Health Organization (WHO) has estimated that CVD will be responsible for over 23 million deaths worldwide with 80% of the deaths occurring in the third world countries.

In Pakistan, Non communicable diseases (NCD) are already causing more deaths than communicable diseases (58%) with CVD being the major contributor. According to recent WHO data one fourth of all these deaths are between the age of 30 and 70years. Cardiovascular diseases are responsible for 29% of all deaths causing over 4 hundred thousand deaths annually. The socioeconomic impact of cardiovascular disease is one of the highest not only at individual but also at societal and national level. It is an established fact that 90% of these premature deaths can be prevented thus avoiding the micro and macroeconomic impact of CVDs.

We are at Health crossroad, on one hand we can capitalize on the demographic transition with a large available work force and ensure a bright future for our nation by ensuring better health in older population. If we fail to act now, unhealthy aging population can push us into a poverty spiral. Research has established that classical risk factors are responsible for over 90% incidence of CVD in all regions of the world including Pakistan. Three life style behaviors namely physical activity, diet and tobacco use are the underlying contributors of all of these risk factors. These factors are not only important for their direct impact on cardiovascular disease but also because these can significantly modify the incidence of other important risk factors such as hypertension, diabetes, dyslipidemia and obesity. Favorable modification of these three fundamental behaviors will also have the most cost-effective and far-reaching impact on the prevention of cardiovascular disease.

In a country like Pakistan with serious resource constraints and where cost of treatment is of utmost significance, it is important not only to include CVDs in primary health care but also to involve clinicians in developing and implementing preventive programs. A preventive cardiology unit at every tertiary care cardiology center is the need of the day. These units will be the backbone of a nationwide CVD prevention program providing support through research and capacity building.

Diet and Cardiovascular Disease Risk-Julie A. Lovegrove

Professor of Human Nutrition, Director of Hugh Sinclair Unit of Human Nutrition and Deputy Director of the Institute for Cardiovascular and Metabolic Research,

University of Reading, UK.

Cardiovascular diseases (CVD), including coronary heart disease (CHD), strokes and peripheral artery disease, are the greatest causes of mortality in Pakistan, and globally. Over 8% of deaths in Pakistan are caused by CHD alone. Lifestyle factors, particularly diet, are key mediators of risk. In 2015, it was estimated that dietary risks were the greatest contributor to CVD, accounting for 10·4 million deaths and 241·4 million disability-adjusted-life years annually. These statistics demonstrate the incontrovertible link between diet and CVD, and highlight the importance of dietary modification for reducing CVD risk. Decreasing saturated fat (SFA) intake has been the mainstay of dietary fat recommendations for CVD reduction for many decades, with polyunsaturated fats being more effective as a substitute for SFA than carbohydrates or protein. However, not all SFA-rich foods have the same effect, with dairy foods associated with minimal impact on CVD risk compared with the equivalent SFA from meats. Plant-based foods, including fruits, vegetables, nuts, seeds, and wholegrain cereals have been linked to lower CVD mortality. These foods contain a number of components, such as flavonoids, that may be cardioprotective by improving vascular function. However, there is no specific guidance on the types of fruits and vegetables to consume for optimum risk reduction. Whole dietary patterns lower in SFA, trans fats and salt, and higher in plant-based foods are associated with a lower risk of CVD, and should form the basis of recommendations for health promotion in populations.

About her:

Professor Julie Lovegrove is the President of the Nutrition Society of United Kingdom and Ireland and Director of the Hugh Sinclair Unit of Human Nutrition at the University of Reading, UK. Professor Lovegrove's research interest is the role of nutrition on cardiovascular diseases, with focus on the metabolic impact of dietary fats, dairy, plant phytochemicals, nutrient-gene interactions and personalised nutrition. Her work, which includes over 280 scientific publications, has made a major contribution in establishing the relevance of dietary fat quality to the development and prevention of cardiometabolic diseases. Professor Lovegrove was awarded Fellow of the AfN in 2014.

Professor Lovegrove serves on a number of external committees, including the UK Government's Scientific Advisory Committee for Nutrition (SACN), and previously on SACN's 'Saturated fats and Health' and 'Carbohydrates and Health' working groups. She Chairs an International Life Science Institute Europe (ILSI) Committee on 'Saturated Fats and Cardiovascular Health', and is an expert on the ILSI initiative on 'Diet and Metabolic Syndrome'. She was Vice-President for the Association for Nutrition (AfN) Council (2016-2019), and Chair of the AfN Accreditation Committee (2011-2019).

Session on Diabetes

Primary Prevention Of Diabetes In Pakistan- Prof. Abdul Basit

Director Baqai Institute of Diabetology &
F.R.C.P. (Lon), Endocrinology (BIDE), IDF Centre of Education
Professor of Medicine Baqai Medical University
Plot 1-2, II-B, Nazimabad No.2
Karachi-74600, Pakistan

Pakistan is confronting a rapidly growing epidemic of diabetes. With a population of 207.77 million, the country currently has 27.4 million people with diabetes[1]. This number is feared to escalate immensely in the coming years.

The overall prevalence of impaired glucose tolerance has been found to be 14.4%. The prevalence of hypertension was 46.2% out of which known hypertension 24.9% and newly diagnosed hypertension was 21.3%. According to WHO cutoffs overweight individual is 58.1% and obesity is 43.9%. Prevalence of overall dyslipidemia 92.2%. Age standardized prevalence of tobacco was 13.4%.[1] According to HbA1c the prevalence of diabetes is 16.9%.[2]

Additionally, prevalence of metabolic syndrome is as high as 49%[3]. To add to the problem, 4.3%, of the children in the country are obese, while another 9.8% being overweight.[4]

Diabetes-related chronic complications are also highly prevalent. The prevalence of peripheral vascular disease (PVD) is 5.3%. The prevalence of microvascular complications such as retinopathy, nephropathy, and neuropathy are 15.8%, 31.0%, and 48.7%, respectively. Unfortunately, 4% of the diabetic patients are affected by diabetic foot ulcers (DFUs).[5]

International Diabetes Federation apprehends that with the current trends, Pakistan will rank fourth in the world, according to number of diabetics, by the year 2030 with 13.8 million people with diabetes[1] and almost a similar number of people suffering from Impaired Glucose Tolerance (a pre-diabetic condition). This state of affairs is extremely alarming and stipulates an urgent need of pragmatic prevention.

The above described scenario signifies further considering the resource constraints and the low socio economic status prevailing in Pakistan. As much as 23% of the country's population lives below poverty line[6]. There is only one doctor for every 1400 people and about 40% of the population has no access to basic health facilities[7]. Per capita health expenditure is as low as Rs.220. On the other hand, the treatment costs are extremely high. To quote an example, Rs.2700 is required to treat a diabetic foot ulcer[8].

A vision to improve diabetes care in Pakistan and to initiate prevention of diabetes in the country, lead to the establishment of Baqai Institute of Diabetology & Endocrinology (BIDE) in 1996. It was the first ever, university based, specialty-oriented diabetes institution in Pakistan. Since its establishment, BIDE has undertaken a spectrum of diabetes management and prevention endeavors.

Through one-year diploma in diabetes, more than 200 doctors from across the country have been trained. For the first time in this country, the Department of Diet and Education has been established which organizes individual and group education sessions and public awareness programs on mass level including diabetes awareness walks. The department has now moved further to conduct individual consultations on primary prevention and lifestyle modification and obesity clinics.

BIDE organized the International Diabetes Conference in February 2006 at Karachi with a theme of "Decade of diabetes care in low resource and underserved communities". Recently, a study on primary prevention has been conducted in collaboration with The University of Oslo (UIO) and Diabetic Association of Pakistan (DAP) to observe the impact of intervention on the prevention of type 2 diabetes mellitus.

As a part of the awareness campaign various activities were organized. We propagated our primary prevention program via posters, banners and leaflets. Our Annual Diabetes Awareness Walk organized on the occasion of the world diabetes day as well as our website has also been used as means to propagate the message to the people.

A two day awareness program at different organizations and medical centers was also arranged. On the first day, interactive lectures on diabetes and its prevention were delivered by the primary prevention team. On the second day, screening of high risk individuals was carried out via a comprehensive baseline screening schedule in which a standardized oral glucose tolerance test was performed.

Our awareness activities helped us to approach nearly 5000 people, out of which nearly 2000 people turned out for OGTT.

The study has shown that lifestyle intervention reduces the incidence of diabetes to 40 % in impaired glucose individuals. This study is currently being used as a model for a broader community based study with the aim to compile population based data and create an environment that is conducive in promoting healthy lifestyles through multisectorial, interdisciplinary collaborations.

BIDE has now planned to involve over 100 of its diploma graduates, to establish primary care clinic network all over Pakistan. We are trying to generate the funds required for this massive accomplishment through various national and international resources.

To conclude, good health is a pre-requisite of good functional capacity and can be positively influenced by general awareness programs, healthy nutrition and regular physical activity which not only provides primary prevention to the rapidly growing diabetic epidemic but also to serious and debilitating complications of diabetes.

In order to implement and carry out effective primary prevention through public awareness, management and research regarding diabetes, BIDE and DAP has taken the initiative.

Diet Quality and Diabetes-Rubina Hakeem

Historically, diet was the only method of reducing hyperglycemia among people with diabetes. Extreme diet control reduced hyperglycemia but lead to energy and nutrient deficiencies, other health issues and shorter life span. Exploration of medicines, made attainment of normoglycemia possible even without modifying the diet. Normoglycemia alone cannot assure optimum health for people with diabetes. A good diet not only facilitates normoglycemia but also fulfills all the other purposes that are to be satisfied by food. Quality of diet is indicted by its potential to provide optimum nutrition. Palatability, acceptability and affordability of the diet are important components of diet quality along with its digestibility and chemical composition. Observations of lack of compliance to dietary guidance and occurrence of complications among the compliant subjects, both reflects on the quality of recommended diet. Evidence to support the crucial role of various components of diet quality in the management of diabetes has been accumulating in the preceding decades. Local evidence also supports a positive role of diet quality and indicate need for efforts for assuring consumption of a balanced diet by people with diabetes. Researchers have explored the role of a selected number of macro or micronutrient and of overall quality of diet in prevention and management of diabetes. Increased understanding of impact of genes and microbiota on nutrition has paved the way for more individualized dietary suggestions. Knowledge of developments in the food, nutrition, social and economic domains is essential for the enhancement of diet quality. Due to vast variations in needs and feasibilities, defining an optimal diet in terms of absolute percentages or amount of macro or micro nutrients is not feasible. Dietary guidance requires knowledge about relevant psychosocial issues and scientific evidence and critical thinking skills to utilize that knowledge judiciously. Interventions aiming at improving diet quality for specific person or group are likely to be more sustainable and effective than a generalized strategy of giving attention to a selected number or dietary components or outcomes.

Type 2 Diabetes Dr Atif Munir

Vice President (Punjab) Pakistan Endocrine Society

Prevalence of Type 2 Diabetes continues to increase by alarming proportions. This is paralleled by increasing trends in obesity which is the biggest risk factor for Type 2 Diabetes. Whilst a lot is known about improvements in glycaemic control with weight loss the concept of putting Type 2 Diabetes into remission with significant & sustained weight loss is what the world of Diabetes research is looking deep into at international scene at present.

In this context the DiRECT trial (Diabetes remission clinical trial) has proved perhaps the most significant international landmark to date. 800 kcal/day dietary restriction with a follow up duration of two years has shown a mean weight loss of 7.6 kg & more importantly Type 2 Diabetes remission rates (defines as HbA1c of < 48 mmol/mol) of 36%. Th weight loss attained at 2 years in more than observed to date with most lifestyle interventions.

DiRECT trial takes us into a new era of research and broaches the subject of remission in Type 2 Diabetes with nutritional management which to date has not been achieved with even the most advanced & latest therapeutic options to treat Type 2 Diabetes.

Dr Atif Munir
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MRCP Medicine (UK)
MRCP Diabetes & Endocrinology (UK)
CCT Diabetes & Endocrinology (UK)

Obesity and Respiratory Diseases-
Prof. Muhammad Saqib Saeed

Obesity is one of the major epidemics of this millennium and affects individuals throughout the world. It causes multiple systemic complications, some of which result in severe impairment of organs and tissues. These complications involve mechanical changes caused by the accumulation of adipose tissue and the numerous cytokines produced by adipocytes. Obesity also significantly interferes with respiratory function by decreasing lung volume, particularly the expiratory reserve volume and functional residual capacity. Because of the ineffectiveness of the respiratory muscles, strength and resistance may be reduced. All these factors lead to inspiratory overload, which increases respiratory effort, oxygen consumption, and respiratory energy expenditure. The patterns of body fat distribution significantly influence the function of the respiratory system, likely via the direct mechanical effect of fat accumulation in the chest and abdominal regions. Obesity plays a key role in the development of obstructive sleep apnea and obesity hypoventilation syndrome. Asthma is more common and often harder to treat in the obese population.

Weight loss caused by various types of treatment, including low-calorie diet, intragastric balloon, and bariatric surgery, significantly improves lung function and metabolic syndrome and reduces body mass index.

Functional Foods and Health – Avenues of Entrepreneurship-Anwar-ul-Hassan Gilani

Vice Chancellor's Office, The University of Haripur, KP

There is shift in disease pattern and the non-communicable diseases (NCDs) are growing with rapid pace, posing serious health challenges. Now the cardiovascular diseases are number one killer of mankind followed by cancer while drugs come third causing death due to error or adverse effects. On the other hand, economic burden on health is growing as the treatment of NCDs with drugs is mainly symptomatic requiring life-long use of expensive medicines causing serious side-effects. Hence, there is revival of interest in using natural measures while the market value of functional foods has grown over 100 Billion USD with the emerging focus on safety, access and preventive measures.

Functional foods are foods that have a potentially positive effect on health beyond basic Nutrition (Fat, Carbohydrates, Protein, Vitamins, Minerals, Fiber, etc.) and they promote optimal health and help reduce the risk of disease. There is sufficient scientific evidence that foods particularly of plant origin are rich in medicinal value, and that the diet rich in fruits, vegetables, cereals, legumes, nuts, olive and fish is inversely proportional to the prevalence of NCDs. Our research spread over a couple of decades reflects that safety and efficacy of functional foods is influenced by their ability to interact at multiple target sites with "effect enhancing and side-effects neutralizing" potential. This presentation will highlight the role of functional foods including Olives, Ginger, Blackseeds, Almonds, Flaxseeds, Turmeric, Moringa amongst others for health and wellness with citing examples from our own studies as well as from the literature and this presentation will draw attention to the growing global market of the functional foods.

Pakistan is rich in functional foods mainly of organic source; however, their nutraceutical potential remains underutilized. Naturally enriched with healthy fatty acids, olive oil is widely preferred for its capability to support brain and heart health, and decelerate the aging process. Nothing is better than Ginger in stomach disorders and pregnancy-induced nausea and vomiting, in addition to multiple other uses. Almonds protects heart and liver with potential to raise HDL and it promote brain function. Our studies on Moringa, considered to be a super food, projects multiple health benefits. Similarly, our translational studies on formulation containing Turmeric and Blackseeds showed remarkable effect in cardio-metabolic disorders. We provided 1st evidence that Flaxseeds proved fruitful in irritable bowel syndrome, for which there is limited option in pharmaceutical medicine. Both turmeric and Ginger proved valuable in Alzheimer's disease, for which limited option in pharmaceutical medicine. Thus, combined knowledge of nutrition and functional foods offers huge potential of nutraceutical preparations with great potential of entrepreneurship in Pakistan.

Talk: New Developments in Nutritional Epidemiology- Dr. Khalid Iqbal

In the last couple of decades, nutritional epidemiology has rapidly grown out of the shadow of traditional nutrition research approaches. Adoption and development of new and novel methods made it possible to investigate influence of diet on long-term health. In this talk, I will focus on methodological developments in nutritional epidemiology. Diet is a complex exposure with no gold standard to assess its intake. Carefully designed questionnaires and repeated measurements are used to estimate dietary intake. Recent evidence suggests that combination of FFQ and 24-hour recall improves precision of usual intake estimation. Adoption of new technologies like image processing to estimate portion sizes may further improve accuracy of intakes. New methods of usual intake estimation and modelling of episodically consumed foods have made it possible to reduce random error and account for systematic error in assessment of dietary intake. Analysis of whole food or dietary patterns analysis is another area of interest in terms of methodological development. Along with factor analysis and reduced rank regression, the addition of tree let transform, Gaussian graphical models and LASSO provide new insights into dietary intake data. In the absence of randomized controlled trails in nutritional epidemiology, these methods are particularly crucial in establishing link between dietary intake and health outcomes. These advances are complemented by development of new tools like NutriGrade for evidence analysis and meta-analytic network and network meta-analysis for evidence generation and evidence synthesis. These approaches are crucial to understand influence of diet on health outcomes and development of food-based dietary guidelines.

Nutritional and physical activity for cancer prevention- Dr. Muhammad Abbas khokhar

Many cancers are preventable. Basic lifestyle changes can have a tremendous impact on the rates of cancer. The fact that such changes also protect against other chronic diseases (cardiovascular disease, stroke, and diabetes) makes the case for prevention even more compelling.

What we eat and drink can affect our health in lots of ways. There are some foods that are directly linked to cancer, but our overall diet is more important than these individually.

A diet high in whole foods like fruits, vegetables, whole grains, healthy fats and lean protein may prevent cancer. Conversely, processed meats, sugary drinks, and alcohol may increase the risk of cancer. According to the literature consumption of red meat has been linked to increase the risk of colorectal cancer. Prostate cancer, commonly found in elderly, has been associated with high calcium intake while high intake of tomatoes are considered to safeguard men from prostate cancer. On the other hand folate in diet has been considred to decreased risk of colon as well as breast cancer, particularly in women who drink alcohol. Alcohol intake, even in moderate quantities, increases the risk for colon, breast, esophageal, and oropharyngeal cancer. Lack of exercise and sedentary lifestyle leads to excessive weight gain which is associated with an increased risk of many types of cancer. Obesity has been estimated to cause 20 percent of all cancers. Contrary to the above Physical activity and maintaining healthy weight is inversely related to risk for colon and breast cancer.
The most prevalent cancer in men in Pakistan i.e oral cavity cancer has strong association with with Paan, Chaalya (Bethel nuts) smoking and alcohol.
In conclusion it is recommended that weight management and eating "mainly vegetables, fruit, whole grains and fish, and a reduced intake of red meat, animal fat, and refined sugar significantly decreases the risk of cancer development.

Reducing the burden of Chronic Respiratory Diseases in Pakistan-Prof Javaid Khan
The Aga Khan University, Karachi

Tobacco use is a common risk factor to the main NCDs - cardiovascular disease, cancer, chronic respiratory diseases (CRD). Globally, 14% of all NCDs deaths among adults aged 30 years and over are attributable to tobacco. According to WHO, the annual death toll from tobacco is expected to rise from the current estimates of 8 million/year to 10 million/year by 2025. And over 70% of these deaths would be in the developing countries. Unfortunately, tobacco use is on the increase in Asia including Middle East, Pakistan, India and Bangladesh. In Pakistan 200,000 people die every year from tobacco related illnesses and large number of them are from COPD. Apart from smoking two other most important risk factors for CRD are indoor/outdoor air pollution and use of biomass fuel for cooking and heating.

Chronic obstructive pulmonary disease (COPD) affects more than 340 million people worldwide and represents the fourth leading cause of death, after, heart attacks, strokes and infectious diseases Although COPD is increasing in prevalence, it is widely under-diagnosed and under-treated in Pakistan. Smoking is by far the most important risk factor for COPD but the use of biomass fuel like wood and coal in cooking is another important cause for this disease especially in women living in rural areas.

Atmospheric pollution is aggravating the lives of patients suffering from CRD. Air quality of many Pakistani cities is amongst the top most polluted cities of the world.

Health professionals can play an important role in reducing the burden of CRD and thus NCDs in Pakistan. Even a brief advice of up to 3 minutes by a health professional to a smoker can significantly increases the chances of a successful quit attempt. Health professionals can also help the government in its tobacco control efforts by promoting clear air policies at hospitals, educational institutions, public places, and public transport. In most of the medical conferences held in the region emphasis is given on the treatment of diseases rather than its prevention in the form of tobacco control.

If we the health professionals remain silent on the growing tobacco epidemic and do not take any action in this regard, about 500 million people alive today will eventually be killed by tobacco over the next 50 years, half of those will be those who are currently children and teenagers.

Nutrition in Cancer Prevention – an Update- Kehkashan Z Hossain

Sind Institute of Urology and Transplantation

Cancer is a major disease burden and the second leading cause of death globally, following cardiovascular diseases. Around 9.6 million people died from cancer worldwide in 2018. In Pakistan the commonest type of cancer in men is of the lip and oral cavity, while in women breast cancer is most widespread. There are many risk factors for cancer such as genetics, ageing, excessive exposure to sunlight and infections etc. however About 1/3 rd of the cancers are due to lifestyle and environmental factors. According to WHO, 30-50% of most cancers can be prevented by avoiding the four shared risk factors for non communicable diseases; tobacco use, alcohol use, unhealthy diet and physical inactivity. Tobacco use is well documented in Pakistan. The use of smokeless tobacco (SLT) in its various forms like mainpuri and gutka is alarmingly high and related to oral cancers, which is the most prevalent type of cancer in men in Pakistan. Obesity is the second leading cause of cancer worldwide and can cause 13 different types of cancers especially breast and colon cancer while physical activity can decrease the risk of cancer. The third report from the World Cancer Research Forum suggests increasing use of fiber especially whole grain cereals, fruits and vegetables, limiting fast food and processed meat and avoiding sugary drinks. Maintaining a healthy weight and engaging in regular physical activity help prevent different type of cancers especially breast cancer, the most common cancer in females in Pakistan.

SECTION TWO-ORAL PRESENTATIONS

I- FUNCTIONAL FOODS

DEVELOPMENT AND ORGANOLEPTIC EVALUATION OF WHEAT-LOTUS ROOT COMPOSITE FLOUR FOR HYPERTENSIVE PATIENT

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ABSTRACT

Background

Lotus (*Nelumbo nucifera*) is an aquatic plant which has been in use in folk medicine since ancient times. Root of lotus plant possesses certain therapeutic benefits including diuretic and anti-hypertensive properties. This research was conducted to utilize lotus root to prepare value-added chapattis and assess their consumer acceptance with respect to sensory attributes.

Methods

Composite flour was formulated by adding lotus root powder in different ratios (10, 20, 30%, 40%, and 50%) to commercial whole wheat flour. After that chapattis were developed by using composite flour and then nutritional and sensory attributes of different chapattis were analyzed by proximate analysis and hedonic scale respectively.

Results

Results of nutritional composition indicated that wheat lotus root composite flour is rich in fiber (3.90-7.0%) but low in fat content (2.95-1.30%). Moreover, adequate amount of protein (12.76-10.99%) and moisture content (9.36-10.66%) was reported. Analysis of mineral content of wheat-lotus root composite flour indicated the optimum 1:4 ratio of sodium (20mg) and potassium content (365mg) which explains the diuretic and anti-hypertensive properties of lotus root. Evaluating the overall quality of chapattis signifies that sensory attributes of all chapattis were acceptable wherein T_3 produced highly acceptable chapattis with mean score of 8.7.

Conclusion

Nutritional value of whole wheat chapattis can be improved by adding lotus root powder. Moreover, lotus root can be utilized in developing novel food products. This value-added flour can provide an opportunity for delivering therapeutic effects against hypertension through staple food of our region.

THERAPEUTICAL POTENTIAL OF CINNAMON TEA AGAINST GLYCEMIC INDEX AMONG MALES AND FEMALES

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Abstract

Background: Cinnamon has a broad range of historical uses as a medicine and is often used as a flavoring agent in different cultures. Several studies have reported that cinnamon has vasodilative, anti-thrombotic, anti-spastic, anti-ulcerous and anti-allergic actions. Cinnamon has been shown to help lower blood glucose levels in people with diabetes.

Objectives: To check the effect of cinnamon tea on diabetic patients and to evaluate how it lowers the glycemic index by using cinnamon in daily life cooking in diabetic men and women and also to access the knowledge of diabetes and eating habits of diabetic patients.

Methodology: This study examined the effect of cinnamon tea in both men and women (n-30). Blood samples were taken for 10 days to measure blood glucose levels. It was measured during fasting and after 6-hours of taking cinnamon tea. A self-made questionnaire was also developed to access the knowledge of diabetes and eating habits of diabetic patients.

Results: There was a statistical decrease in blood glucose level after consumption of cinnamon tea. The mean decrease in the blood glucose level was 15.95. We also observed the standard deviations that the results in both conditions are similarly dispersed. T-value is significant as the P-value is less than 0.05. This is reported as t (299)= 5.34 , p< 0.001. Out of 30 patients 16 (53.3%) skip meal, 16 (53.3%) changed their eating habits and 22 (73.3%) were aware about nutrition strategy to control blood sugar level. 10 (33.3%) patients had hypertension, 10 (33.3%) have blood pressure, 16 (53.3%) use insulin and 22 (73.3%) were physically inactive.

PHYTOCHEMICALS FROM PLANT SOURCES: WAY FORWARD TO REDUCE HYPERTENSION

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ABSTRACT

Background: Phytochemicals are natural bioactive compound found in several plant origin foods including fruits, vegetables and nuts. Possible mechanism of phytochemical against hypertension includes inhibition of angiotensin converting enzyme as well as regulation of bioavailability of nitrous oxide. Present study was planned to check effect of phytochemicals against hypertension.

Methodology: Plant food sources including watermelon seeds and beet root were selected and their phytochemical profile (Polyphenols, flavonoids, saponins and alkaloids) was checked. Hypertensive test subjects including male and females were randomly selected from surrounding for intervention trial. Efficacy study consisted of 40days was conducted followed by one-week of washout. Systolic and diastolic blood pressure was measured on daily basis.

Results: Present study revealed that water melon seeds possess adequate amount of phytochemicals including total phenols (553.93±1.10mg GAE/100g), total flavonoids (386.12±1.09mgCE/100g), saponins (0.83±0.09%) and alkaloids (3.41±0.15%). On the other hand, amount of phytochemicals in beet root was found to be less as compared to watermelon seeds such as total flavonoids (286mg RE/100g), total polyphenols (345mg GAE/100g) and nitrate (110mg/100g). Moreover, efficacy study showed that intake of water melon seeds significantly decreases ($p<0.001$) systolic blood pressure (13-16mmHg) and diastolic blood pressure (8-10mmHg). On the other hand, beetroot intake also reduces blood pressure but reduction was observed to be less as compared to water melon seeds. Thus, present study shows that food sources that have high phytochemical profile shows significant decrease in blood pressure as compared to low phytochemical profile food.

Conclusion: Regular usage of plant source foods are found to be effective for hypertensive patients due to presence of high profile of phytochemicals.

ANTI-DIABETIC POTENTIAL OF *MORINGA OLEIFERA* IN TYPE 2 DIABETES MELLITUS

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ABSTRACT

Background:

Type 2 diabetes is a non-insulin dependent diabetes mellitus, is a major health issue that is associated with considerable morbidity and mortality. The incidence of type 2 diabetes mellitus is increasing worldwide. Despite of the existence of well-recognized anti-diabetic medicinal drugs in the pharmaceutical market, cures from medicinal plants are proved to be successful for the management of this disease. Plant drugs and herbal formulations are recurrently considered to be non-toxic and free from side effects than artificial ones. Based on the WHO recommendations, hypoglycemic agents of plant origin used in traditional medicine are significant. From all these plants, *Moringa oleifera* has been used in traditional medicine for the management of diabetes mellitus without any side effects.

Methodology:

For the purpose, moringa were characterized and subsequently utilized for the preparation of nutraceuticals and then tested in laboratory. According to proximate and bioactive compound characterization, moringa is good source of beneficial nutrients and antioxidants (TPC and TFC). Efficacy trials were carried out on the diabetic patients to conclude the nutraceutical's effect contrary to hyperglycemia.

Results:

There was maximum reduction in blood glucose level in diabetic patients. Similarly, HbA1c also showed significant result after consuming moringa nutraceuticals by diabetic patients.

Conclusion:

From the results of current reasearch, it is concluded that moringa nutraceuticals is effective against Diabetes Mellitus therefore; these can be a part of daily diet for the management of chronic diseases such as Diabetes Mellitus.

NUTRIPOTENTIAL OF CHIA SEEDS (*SALVIA HISPANICA*) AGAINST GLYCEMIC RESPONSE IN HEALTHY ADULTS

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ABSTRACT

Background: Chia (*Salvia hispanica*) contains high amounts of omega 3 and omega 6 essential fatty acids, α-linolenic acid (ALA), soluble and insoluble fibers and phenolic compounds (myricetin, cholorgenic acid, quercetin, kaempferol and 3, 4 dihydroxyphenylethanol- elenolic acid dialdehyde (DHPEA-EDA) that exerts positive effects on human health. Chia may help to increase satiety, prevent cardiovascular diseases, diabetes, diverticulosis, cancers, and inflammatory and nervous system disorders. Fibers and PUFA in chia seeds leads to satiation and satiety that is controlled by two mechanisms occurring at brain level and at gastrointestinal tract. Viscous fibers present in chia seeds results in the reduction of glucose absorption rate in the small intestine which subsequently controls the glycemic response. The hypoglycemic effect of chia seeds is mainly due to its high content of viscous dietary fiber. High-fiber foods slow gastric emptying, promote satiety, reduce serum insulin concentrations thereby decrease intake of food.

Methodology: The present study has been designed to evaluate the satiety and glycemic effect of chia seeds using indigenous, inexpensive and safe approach. The study was conducted on healthy adults to determine the effect of escalating doses of chia seeds on postprandial glycemic response and satiety. Blood samples were collected in order to measure glucose level in fasting and postprandial state. The satiety effect was indicated by using Visual Analogue Scale (VAS).

Results: The data obtained was analyzed using appropriate statistical analysis methods. The results showed a significant reduction for blood glucose concentration as well as a significant increase in satiety at $p \leq 0.05$.

Conclusion: The study concluded that the consumption of chia seeds in a dose dependent manner produced a marked reduction in postprandial glycemic response. When chia dose increased, so does its reducing effect on postprandial glycemic response. On the other hand, the satiety effect significantly improved with increasing dose of chia seeds.

II- CARDIOVASCULAR

HYPERTENSION RELATED KNOWLEDGE AMONGST UNDERGRADUATE STUDENTS.

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ABSTRACT

Background: Hypertension is the leading modifiable risk factor for stroke, being causally involved in nearly 70% of all stroke cases. The improvement of efficacy of the hypertension prevention and patient education largely depend on determination of the hypertension risk factors and increase in knowledge about hypertension.

Objectives: The purpose of this study is to assess the knowledge of male and female students about hypertension and to compare the knowledge of male and female students about hypertension.

Methodology: The research was carried on 100 students (50 males, 50 females) from IQRA University. A simple questionnaire method was used to collect data. Chi Square test, cross tabulations and frequencies were used to analyze the data. Analysis was done on SPSS, 17 version.

Results: The study showed that there is a difference in knowledge of hypertension among male and female students ($p = 0.0375$ i.e. < 0.05); knowledge of male (55%) students were rated good whereas females (58%) was rated as average and the overall knowledge (30%) of the population surveyed was rated good.

Conclusion: This study concluded that there is a difference in knowledge of hypertension among male and female students.

HIGH DIETARY DIVERSITY SCORE IS ASSOCIATED WITH OBESITY IN PAKISTANI WOMEN

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ABSTRACT

Background
Obesity is turning out to be the major cause of mortality worldwide.
Objective
The present study is aimed to evaluate the association between dietary diversity score and obesity in community based Pakistani women.
Methods
Three hundred and twenty-two adult females belonging to Aga Khan, Dawoodi Bohra and Memon communities participated in this cross-sectional study (during June 2011 to August 2012). Dietary intake was assessed through food frequency questionnaire and dietary diversity score (DDS) was calculated through the summation of the scores of five food groups. The association between DDS and obesity was determined after adjusting for confounders using logistic regression analysis.
Results
The DDS was determined with minimum 3 and maximum score of 5. Participants with lesser DDS were older, belonged to Memon community, were single and less educated, belonged to income group of 26,000-50,000 PKR and had lower BMI. It was observed that consumption rate of fruits, vegetables and milk group increased with increasing DDS. However, cereal and meat group was found to be highly consumed even at lower DDS. A very low percentage of respondents were found to follow the national recommendations for the consumption of fruit, vegetable and milk groups (<10%, <10% and <36% respectively). Cereal and meat group was noted to be most widely consumed groups. Mean BMI of Aga Khani women ascended significantly with upward DDS. No significant difference was observed for WHR in any DDS and community. Energy intake gradually and significantly raised with rising DDS among all communities. The adjusted OR of obesity significantly increased with increasing DDS.
Conclusion
The findings of this study demonstrated that higher DDS is significantly associated with obesity among Pakistani women. It can be concluded that majority of Pakistani women failed to follow a balanced diet and their diet lacks variety and reflected unhealthy eating habits.
Keywords
Dietary diversity, obesity, food groups, communities, Pakistan.

ASSOCIATION OF CENTRAL OBESITY WITH NON-COMMUNICABLE DISEASES

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Background
Recent studies suggested that central obesity is more common among children and adolescents and this trend is increasing worldwide, leading to the escalated risk of cardio metabolic diseases like hypertension, hyperlipidemia, diabetes etc. Central obesity in children is due to the combination of various factors, involving environmental factors, genetic factors, social factors and lifestyle behavior, therefore is a major clinical and public health concern.

Objective
To determine the prevalence of central obesity in children and its association with lifestyle habits.

Methodology
The study sample involved 124,113 children (mean age 9.9 +- 1.1 years) from third and fifth grade of primary school. Anthropometric measurements were performed by trained physical education professionals. The specific cutoff point for waist-to -height ratio has been developed i.e. >_0.5 and is used to define the central obesity in children. 7-day recall questionnaire was used to assess the lifestyle habits of children. Statistical analysis was done by using t-test ($p<0.001$)

Results
The results showed that 33.4% of the sample children were classified as centrally obese. The prevalence of central obesity was more significant in boys as compared to girls (36% vs. 30%). 95% of the obese children had central obesity. The results also revealed that main contributing factors to central childhood obesity include poor dietary habits, less frequent breakfast consumption and sedentary lifestyle. The current study is conducted through different electronic media like PubMed, Scopus, Medline, WebMD and some books from 2015-2019 published years.

Conclusion
Human studies revealed that central obesity is dependent on the lifestyle factors such as eating habits and patters and level of physical activity.

Recommendations
There is a need for a shift towards a healthier environment for children with major focus on lifestyle modifications including regular meal consumption and more physical activity.

Keywords
Childhood obesity, central obesity, lifestyle habits, Physical Activity, Meal Consumption

ASSOCIATION OF EGG YOLK CONSUMPTION ON LIPID PROFILE AFTER CARDIOVASCULAR INTERVENTION

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ABSTRACT

Background:
The association of dietary cholesterol and cardiovascular disease was in debate for the decades. The dietary sources of cholesterol, saturated fat and animal protein often coexists in foods. The Egg is one of these sources and always been in a controversy because of its high cholesterol content. However, as a current dietary guidelines of AHA [2015-2020] no longer recommend this but, evidence of the relation remains limited in South Asia countries.

Objective:
The aim of the study was to determine the association of egg yolk consumption on lipid profile after cardiovascular intervention such as angioplasty or Coronary artery bypass grafting.

Methodology:
A total of 55 participants were taken who was admitted in the Aga Khan University Hospital, a written informed consent was obtained from all the participants for data collection and on the day of admission their weight was taken under supervision and lipid profiles checked. After cardiovascular intervention done before discharge detailed dietary teaching given with sample menu mentioned one egg with yolk daily and follow up given at clinic after 3 or 6months with lipid profile as per physician recommendation.

Results:
In this study, all participants reported daily consumption of one egg, followed at the clinic. At a baseline reduction in total cholesterol on average after 3 to 6 months follow up was 5-7%, low density lipoprotein was 9-10%, triglycerides 12-15%, very low density lipoprotein 3-4%, however an increase in high density lipoprotein was 6-9%. Weight reduction on follow up was 5-6 kgs on average.
There was no significant association as P value is <0.05.

Conclusion:
Dietary cholesterol and egg consumption are not significantly associated with lipid profile. However, with proper dietary teaching and intake one egg daily will not increase blood cholesterol levels.

PREVALENCE OF HYPERTENSION DISORDERS IN FEMALES DURING THIRD TRIMESTER OF PREGNANCY

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ABSTRACT

Complications of high blood pressure include Hypertensive disorders which are the most common medical complications of pregnancy and are an important cause of maternal and perinatal morbidity and mortality in general worldwide and in Pakistan as well. The aim of this research study was to find out hypertension as a most common complications of during 3rd trimester of pregnancy. The objectives of the research study were set to determine the raised Blood Pressure of hypertensive pregnant women to find the sign of Proteinuria and seizer in patient and to find the role and consumption of minerals including Sodium, Potassium, Calcium and Iodine by hypertensive pregnant women through their diet. Samples of hypertensive pregnant women during their 3rd trimester were taken from the gynecology ward of various hospitals. Questionnaire was prepared on the basis of ABCD method. Afterwards, data was compiled and statistically analyzed by using SPSS version 19.0 and Win Diets 2005 software, to appraise the validity of research objectives, data collected and calculations. Results of the conducted study revealed that the occurrence of high blood pressure and presence of proteinuria is very common disorder among pregnant women at their 3rd trimester. Likewise, high consumption of minerals is a key contributing factor in increasing blood pressure of hypertensive pregnant women. The nutrient intake of the pregnant women that was recorded through 24 hours recall method based on the age range and reference value (RDA), the mean and standard deviation, t-value and p- value of every nutrient were calculated. Hence, it was concluded that Hypertensive disorder is the most common medical complication that occurred during 3rd trimester of pregnancy and hypertensive pregnant women should take hypertension suppressing pill prescribed by the doctor and contact the registered Dietitian to help in limiting the consumption of minerals like Sodium, Potassium, Calcium and Iodine which might be contributing factor of hypertension disorder.

Keywords: Hypertension, Proteinuria, Pregnancy, Seizer, Potassium Sodium, Calcium Iodine

III- DIABETES

TO ASSESS THE FOOD CONCEPTS, LIFESTYLE AND DIETARY PATTERNS AMONG THE ADULTS WITH DIABETES MELLITUS

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ABSTRACT

Background: Diabetes mellitus leading to abundant overwhelming complications has rapidly increased over the past two decades, becoming an epidemic in underdeveloped countries like Pakistan. It is estimated that globally 16.5% of deaths are attributed to diabetes. WHO has ranked Pakistan on 7th number in diabetes prevalence list. Diabetes mellitus affects approximately 422 million people around the globe. It is estimated that 1.5 million deaths were directly caused by diabetes and 2.2 million deaths caused by high blood glucose. It needs special implementation and maintenance of dietary habits, lifestyle practices, and food concepts for its management. This study was designed to assess the relationship of food concepts, lifestyle practices and dietary patterns among adults with diabetes mellitus.

Statement of Problem: Diabetes prevalence is increasing day by day throughout the globe especially in developing and under-developing countries. According to World Health Organization, it will predict that, in 2030 diabetes will be the 7th leading cause of deaths. The study will help us to know the common food concepts, dietary and lifestyle practices among diabetics. It will also give an overall picture of diabetics' diet outlook and will also suggest interventions and awareness that needs to be done for the betterment of diet.

Objectives: (i) Identify different food concepts among adults with diabetes. (ii) To assess the dietary & lifestyle practices among adults with diabetes.

Methodology: The target population was adults with diabetes. Data was collected from diabetic OPD of both private and government hospitals of Lahore, Pakistan. The sample size of the study was 600 participants and the technique of selection was convenient sampling. The questionnaire was developed to assess food-related myths in diabetes, lifestyle routine practices and eating patterns among adults with diabetes. Questions related to food concepts, diabetes awareness, and physical activity were asked. The interview approach was used to fill the questionnaires. Statistical techniques used were Percentages (%) and cross tabs. Moreover, Data Analysis was done using SPSS version 20 and Microsoft Excel 2013.

Results: The study showed that 55.8% of adults have family history of diabetes mellitus. Approximately 41.8% people were physically inactive and have a sedentary lifestyle and 47.8% people were dining out at all. Participants having no or less education have

more uncontrolled HbA1C as compared to educated participants. 40% Participants skip medicine when their blood glucose levels were normal. 49.5% participants have improper dietary patterns.

Conclusion: By analyzing the findings of research, the food concepts of diabetic patients vary from each other people have less knowledge regarding food concepts and diabetes management. Lack of physical activity among individuals approximately half of the participants are physically inactive. Health education and other interventions to promote healthy eating and lifestyle habits, especially prevention among high-risk groups are suggested.

Keywords: Diabetes mellitus, Dietary practices, Food Concepts

PAKISTAN PREVENTION PROGRAMME FOR GESTATIONAL DIABETES MELLITUS (PPP-GDM): A FEASIBILITY STUDY

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ABSTRACT

Background: Globally one in seven women develops hyperglycemia in pregnancy. In Pakistan, 8% of women develop gestational diabetes mellitus (GDM) and are at an increased risk of having type 2 diabetes (T2DM) compared to women having healthy pregnancy. It is estimated that by 2035 12.8 million people in Pakistan will have diabetes and young women with GDM will contribute to it further. GDM women are a potential group for primary prevention of T2DM and to reduce diabetes related morbidities and mortalities.

Objective: To change in weight by 5% through a home-based intervention augmented with mHealth compared to usual health.

Methods: An individual randomized control trial was employed from xx 2016 to December 2017 in Karachi. 100 women with GDM were recruited in both intervention and control arm from one public and one private tertiary level health facility during pregnancy. Women who tested negative on postnatal Oral Glucose Tolerance Test (OGTT) at 6 weeks were randomized to intervention or control arm. Women in intervention arm received one to one counseling (30-60 minutes) at their home for physical activity and healthy diet by research team at 1, 3, 6 and 9th month along with voice messages in between the home visits for reinforcement. Anthropometric measurement, body composition, blood pressure, HbAIC and lipid profile was measured for both intervention and control group at baseline and end line. Physical activity and food intake were also measured through short International Physical Activity Questionnaire and food frequency questionnaire. Difference between two groups determined through chi-square and student's t-test using SPSS keeping cut-off of p-value <0.05.

Results: Both groups were comparable at baseline in terms of socioeconomic status, education and past obstetric history, body composition, blood pressure and lipid profile. No significant difference was found in anthropometric measurements, body composition, blood pressure and lipid profile among two groups. Nearly half (48%) of the control group was inactive compared to 30% of the intervention group (p-value

<0.05). Median daily intake of bakery items was less in intervention group versus control [0.42 (0.19, 0.95)vs 0.78 (0.19, 1.2)]. The significant difference was found in intake of fruits in both groups; less fruits consumed by intervention arm. Loss to follow-up was 32% in intervention arm; 40% in control arm.

Conclusion: Our study found did not find difference in weight between intervention and control arm but an increase in physical activity and lesser intake of food high in trans fats in intervention arm was observed. We believe intervention helped the participants to improve their lifestyle and the lack of difference in study outcome is due to the shorter duration of the intervention. Study suggests that investment in community level health workers for promotion of physical activity and healthy diet can improve health indicators of the country.

NUTRITION EDUCATION- AN EFFECTIVE APPROACH TO IMPROVE NUTRITIONAL STATUS OF DIABETIC CHILDREN

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ABSTRACT

Background:
Nutritional management is one of the foundations of diabetes care. To have a positive effect on the diet of children nutrition education must be provided to mothers. Mothers have a significant effect on a child's dietary intake as they are role models of children as well as they are responsible for making food for the whole family. The purpose of this study was to assess the mother's awareness and its effect on the nutritional status of 8-11 years old diabetic children.

Method:
The study sample consisted of 30 diabetic children and their mothers. The study comprised of two phases. Nutritional status of children was assessed and knowledge of mothers regarding diabetes was also assessed. In the second phase nutrition intervention was provided to mothers to improve their knowledge and with the help of the posttest improvement in knowledge of mothers and nutritional status of children was observed. The findings were statistically analyzed. Paired sample t test was adopted for this study.

Results:
Findings suggest that nutrition intervention improves knowledge of mothers ($p<0.05$) and it also has a positive effect on the nutritional status of children ($p=0.00$) pretest mean weight changed from M=27.63kg to M=29.27kg, pretest mean height increased from M= 137.10cm to M= 138.13cm after intervention.

Conclusion:
Mothers have an important role in the lives of children specifically in a country like Pakistan mothers are the primary care provider to their children. Providing right information to them can affect the health of their children. In the current study it was observed that educating mothers about the different aspects of diabetes not only improved the knowledge but it also improved the anthropometric measurements specifically height and weight of children.
Overall, the results suggest that providing education to mothers can improve the nutritional status of children.

PREVALENCE OF PREDIABETES AND ASSOCIATED RISK FACTORS IN OVERWEIGHT AND OBESE FEMALE ADULTS OF LAHORE

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ABSTRACT

The basic aim of this study was to predict the overweight and obesity in female adults, indication of prediabetes in students and its relation with dietary habits and physical activity and also predict associated risk factors using a cross-sectional descriptive study involving questionnaire based survey followed by clinical tests to validate the incidence of diabetes and pre diabetes. For this purpose, questionnaires were filled by respondents. Height, weight and blood glucose levels were also measured and recorded in the questionnaires. Blood glucose levels were measured by using glucometer. Target sample size of the study was 400 overweight and obese female adults studying at higher education level in different Universities of Lahore. Sample was to be achieved through convenient sampling technique. From the results, it was revealed that BMI, waist to height ratio shows a significant correlation. Mean of BMI ±24.52 and mean hip to waist ratio is ±.7925 and mean value of waist to height ratio is ±.4821. The overall fasting plasma glucose ranges in prediabetes was 32.5% with 129 individuals and OGGT ranges in prediabetes 14% with 52 individuals. BMI was higher of these participants as compare to those individuals whose BGL were normal. In this study BMI, fasting blood glucose levels shows a positive relation. Higher BMI values indicate higher BSL at fasting.it is also indicated nonsignificant relation to OGGT. But OGGT and FBGL shows a positive relation. Conclusively, it can be narrated that masses must aware about prediabetes and diabetes to reduce the cost and number of disease.

Keywords: Diabetes, BMI, OGGT, FBGL

CLINIC FOLLOW UP COMPLIANCE OF PERSONS WITH TYPE 1 DIABETES IN TERTIARY CARE HOSPITAL

Faiza Kamal

Abstract

Objective: The main objective of the study is to find out the practices and attitudes of people with type 1 diabetes mellitus for the follow up.

Methodology: A cross-sectional study was planned to assess the attitudes and responses of type 1 diabetics related to follow ups. A total of 98 type 1 people with diabetes were included for the period of one year. These patients were called telephonically and were texted on their mobile numbers which were given by them at the time of registration. The calls and text were generated by the diabetic center. To analyze the data SPSS 21.0 version were used.

Results: Out of 97, 48(49.5%) were male and 49(50.5%) were female. The mean age of total type 1 diabetics were 17.03±6.54 years. Mean duration of diabetes was 4.61±5.2. Hemoglobin A1C (HbA1c) mean was 10.59±3.09. The results of our study showed that only 25.8% of the participants showed up at the day of appointment.

Conclusion: It was concluded that majority of the people responded to the text and the phone calls however did not turned up. In case of general follow up only 50% of the patients were reported to keep their follow up for checkups.

IV- PUBLIC HEALTH

IMPROVING THE PERCEIVED IMPORTANCE OF FOOD LABEL INFORMATION- AN APPROACH TO PREVENT CHRONIC HEALTH CONDITIONS

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ABSTRACT

Background

In this era of commercialized food products, nutrient labels play an important role in influencing the food choice behaviors of consumers. Packaged products, while offering convenience and value addition, may pose risk towards chronic health conditions upon regular consumption. Making informed food purchase decisions may provide consumers with an opportunity to choose among healthier options. Perceived importance of food labels and their usage may be influenced by nutritional knowledge of individuals, whether gained through formal or informal means.

Method

Non probability, purposive sampling technique was used to select 126 undergraduate university students of Lahore. Data was recorded through an adapted questionnaire consisting of relevant socio demographic information, 13 item nutrition knowledge scale (α=0.645), 10 item food label knowledge scale (α=0.871) and 11 item food label usage scale (α=0.791).

Findings

Mean age of the sample was 19.65 years. About three quarters (76%) of the sample consisted of nutrition students. Average scores on nutrition knowledge, knowledge about food labels and usage of food label were 34.52/46, 17.40/32 and 30.16/39 respectively. The findings revealed a significant positive correlation of nutrition knowledge with knowledge about food labels (r=.455, p=0.000) but not with the reported usage of those labels (r=.062, p>0.05). Information about various components of food labels was found to be associated with the field of study of students. A significantly larger percentage of students of nutrition program recognized the nutrition information component of food label compared to other degree programs (χ^2= 16.647, p=0.000).

Conclusion

The findings of this study suggest that nutrition knowledge, although associated with knowledge about food labels, is not associated with the actual usage of food labels. This study highlights the scope of psychological and behavioral economics factors, rather than just improving the nutrition knowledge, for improving food label usage and for helping individuals make healthier food choices.

DEVELOPMENT & VALIDATION OF AN ELECTRONIC APPLICATION (FOODEAPP) TO ASSESS THE DIETARY INTAKE OF ADULTS IN KARACHI, PAKISTAN - A PILOT STUDY

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ABSTRACT

Background and Rationale

Examining changes in dietary habits is essential in several areas of study, i.e. market research on food consumption patterns, and diet-disease relationship studies. Contrary to the assessment of other lifestyle-related risk factors i.e. smoking in the context of disease causation, precise dietary exposures are difficult to measure. Over the past decade, high-income countries (HICs) have developed and validated tools to assess dietary intake. However, these cannot be readily used in Pakistan, because of low literacy rate & dissimilar dietary habits. Therefore, we developed an electronic application (FoodEapp) to assist unskilled data collectors to collect dietary data accurately in minimal time & cost. The app includes features: 1) Food Atlas: portion size image food. 2) Locally formulated Food Composition Database.

Methodology

This is a mixed-method study, aimed to assess the validity and feasibility of Eapp for multiple 24-hour Dietary Recall (DR) data collection in Karachi University Residential Colony (urban site) & Gadap (rural site), Karachi Pakistan. Unskilled dietary data collectors are conducting four 24-hr DR through FoodEapp. Whereas, nutritionists are validating by conducting two conventional, i.e. paper-pencil based 24-hr DR. Feasibility and end-user experience will be assessed through in-depth interviews & focus groups. Recruitment of 360 adult (age 18-70) is currently in the process through random sampling in both sites.

Data Analysis Plan

Descriptive analysis. Bland Altman plots to assess agreement between the Eapp and conventional 24-hr DA. For concurrent validity, Pearson or Spearman's rho correlation coefficients will be calculated for the nutritional intake of Estimated from the app based data versus the dietary intake data collected through the conventional method.

Expected impact of the outcome

This validation study will assist us in carrying out a more extensive country-level diet survey to evaluate the dietary intake of the Pakistani population.

NUTRITION CARE MANAGEMENT SYSTEM IN A TERTIARY CARE HOSPITAL STEPPING TOWARDS INCREASED EFFICIENCY

ABSTRACT

Background

Every hospital in Pakistan has its own tailor-made Health Information System (HIS) or its module that has been developed by their in-house information technology department. Hospitals tend to develop and upgrade their HIS and its module according to their own requirements, preferences, demands, schedules and procedures. Overall in Pakistan, there is no standardized HIS that all hospitals follow.

Objective

To assess the nutrition care system in a tertiary care hospital to identify factors responsible for its reduced efficiency and outcomes.

Methodology

We collected primary data in the form of interviews conducted with the users of the nutrition care system. A total of 24 employees (15 females and 9 males) were interviewed. Each participant took an average of 20-30 minutes to answer all the related questions. Also, the users logged into the systems and pointed out the issues in real time. We took the screen shots of the system and included them in our results. Thematic analysis was conducted to analyze the data.

Results

The assessment found many irrelevant, outdated, unnecessary or useless commands within the system. The commands created confusions for the users and needed to be removed to save time and avoid storing of wrong information in the EHR (Electronic Health Record). The system also had some incorrect formulae saved that produced wrong calculations and customer bills. Some applications embedded in the system were responsible for slowing it down. Moreover, redundant and repetitive process such as reentering the same information again and again resulted in unnecessary delays. Finally, several recommendations and alternative solutions have been proposed.

Conclusion

Despite many issues using the system, it offers immense support in providing excellent health care and accountability. It is important that the issues identified should be addressed to resolve administrative workload and to increase user's satisfaction. The ability to capture and use correct information about patients and services is essential for building strong health systems and to provide comprehensive and integrated patient care.

Key words

Efficiency, Nutrition care management system (NCMS), Tertiary care hospital.

BREAKFAST CONSUMPTION AFFECTS MICRONUTRIENT PROFILE AMONG ADOLESCENT GIRLS

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ABSTRACT

Studies in the past have proved that a breakfast of both high quality and quantity affects the overall nutrient profile of the consumers. The aim of the present study was to find whether breakfast consumption has an impact on the micronutrient profile of the adolescent in Peshawar University. A cross-sectional study assessed 200 girls aged 16-19 years during the month of March-April 2017 in University of Peshawar. 24 hour dietary recall method was used to collect dietary data of one week and average intake was calculated. Consumption pattern was then compared to the daily recommended values. Results indicated that a total of 48% girls were regular breakfast eaters while 52% were skippers & irregular breakfast consumers. Breakfast intake made a significant contribution to the daily micronutrient intake of the participants. Results indicated a lower vitamin B_1 ($P<0.02^*$), folic acid ($P<0.04^*$), vitamin C ($P<0.04^*$), Mg ($P<0.00^*$), P ($P<0.02^*$), Fe ($P<0.00^*$), and Mn ($P<0.02^*$) intake among breakfast skippers. Study participants who skipped breakfast did not make up the differences in dietary intake at other meals. Higher percentage of girls who did not eat breakfast was not able to fulfill 2/3rd of their daily micronutrient requirements. This data confirms the overall importance of breakfast in dietary quality and adequacy among adolescent girls.

Keywords: Adolescent Girls, Breakfast Skippers, Micronutrients, Dietary quality Adequacy

ASSESSMENT OF DIETARY PRACTICES OF ADULT FEMALES BEFORE AND DURING RAMADAN

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ABSTRACT

Background

It is evident from several researches that dietary patterns change considerably during the month of Ramadan. This can lead to decline in the nutritional status and may be a risk factor for developing non communicable diseases. The study was carried out to compare the dietary and nutritional intakes of women during and before Ramadan.

Methods

A sample of 300 women (150 working and 150 non-working) was selected by employing purposive sampling technique. Data was collected through an interview schedule administered twice (before as well as during Ramadan). Twenty four hour recall was used to calculate Healthy Eating Index (HEI) scores for all food groups. Comparison of HEI scores before and during Ramadan was made using paired samples t test.

Results

Mean age of the sample was found to be 34.92±3.19 years. The mean overall HEI scores of sample before Ramadan (working=69.82±2.33; non-working= 73.05±1.98) were found to be significantly higher than HEI scores during Ramadan (working=62.58±1.22; non-working= 66.35±1.76). The HEI scores for grains, vegetables, fat, cholesterol, and sodium decreased during Ramadan while those of fruits, milk and meat increased. An overall decline in dietary quality was observed during Ramadan with increased fat consumption being of utmost concern.

Conclusion

Decline in HEI scores in Ramadan diet, especially the increased consumption of fatty foods can increase the risk of deranged lipid profile and induce chronic inflammatory response. The health status of females is of utmost importance for the wellbeing of the whole society. Therefore, balanced diet throughout the year is very important in increasing their productivity in society and preventing chronic diseases.

V- LUNG HEALTH & TOBACCO

PREVALENCE AND FACTORS ASSOCIATED WITH RESPIRATORY SYMPTOMS IN BURDEN OF OBSTRUCTIVE LUNG DISEASES (BOLD) STUDY PARTICIPANTS IN KARACHI, PAKISTAN

Rooman Ul Haq, Hasan Nawaz, Muhammad Irfan, Peter Burney, Asaad Ahmed Nafees

ABSTRACT

Introduction

Respiratory symptoms lead to various lung diseases that are one of the major causes of disabilities and death and burden is more in developing countries. There are several environmental and social risk factors associated with respiratory symptoms. These include tobacco smoking, exposure to biomass and occupational dusts/gases/fumes, poor socioeconomic status, aging, lower body mass index and poor ventilation in the kitchen.

Objective:

To estimate prevalence and factors associated with respiratory symptoms in Burden of Obstructive Lung Diseases (BOLD) study participants in Karachi, Pakistan

Methods:

1052 men and women aged 40 or above were recruited from 75 clusters of Karachi. They completed locally translated version of internationally validated respiratory questionnaire used in the BOLD study that included respiratory symptoms, health status and exposure to environmental and social risk factors. Outcome variables included cough, phlegm, self-reported chronic bronchitis, wheeze and shortness of breath. Descriptive tables and frequencies were run for all variables and stratification of respiratory symptoms was run according to covariates. Chi-square test was applied to obtain p-values (p-value<0.05). Ethical approval was taken from ERC prior to study.

Results:

Acute & chronic cough were both significantly associated with age, education level and biomass fuel use. Acute phlegm had significant association with age, gender and smoking years while chronic phlegm was highly significant with age and smoking years. Shortness of breath while walking uphill was highly significant with gender, education and biomass fuel use. Self-reported chronic bronchitis was significant with age groups. Symptoms of wheeze were highly significant with education level of participants.

Conclusion:

We found high burden of respiratory symptoms in Karachi. Use of biomass fuel at home, smoking and age were one of the major risk factors for respiratory symptoms

Key words: respiratory symptoms, biomass fuel,

ADDRESSING SMOKELESS TOBACCO AND BUILDING RESEARCH CAPACITY IN SOUTH ASIA (ASTRA)

Javaid Khan, Romaina Iqbal, Zohaib Khan, Narjis Rizvi, Zohaib Akhter and Kamran Siddiqi

ABSTRACT

Background

Smokeless Tobacco (ST) is commonly consumed in South and South East Asia in variety of forms i.e. *naswar, gutkha, khaini, zarda, mainpuri* and *betel quid* and is a reason of significant morbidity and mortality. We have set up a new collaboration (ASTRA) between six leading UK universities, a WHO Global Knowledge Hub on ST and four institutions in Bangladesh, India and Pakistan. Through ASTRA, we are conducting longitudinal cohort and intervention research to prevent ST-related deaths in South Asia, by looking into underlying factors of ST uptake and addiction in youth, perspective and economics of ST sellers, and intervention to help adults to quit using ST.

Methodology

ASTRA consists of sub studies being carried out in multisite urban and rural settings in Karachi through Aga Khan University and in Peshawar through Khyber Medical University. The project is based on cross sectional, longitudinal cohort and multifactorial randomized controlled trial designed sub-studies including both qualitative and quantitative components e.g. a) The Policy study will assess the impact of existing tobacco control policies on the attitudes and behaviors of young people and people who sell ST; b) The Cessation Trial (n=88) is being conducted to test new activities such as advice, treatments or leaflets, to help adults stop using ST; c) The Youth study (n=300) is being conducted on school going children of class 6 to 8 to understand underlying behavior and perspective of ST uptake in young population; d) The Sellers study (n=198) assessed the compliance of the ST supply chain actors with the tobacco control laws in Pakistan and economic aspects of individual vendors; e) The Economic Study is designed to estimate the economic cost and health impact of ST use based on the current consumption rate (i.e. in the absence of new policies and interventions), and to identify and estimate the impact of potential strategies that could mitigate this cost.

Results

ASTRA is a multi-year project and the sub-studies are under various stages of data collection and compilation. Study respective results are expected to be shared as soon as the data would be analyzed.

Conclusion

Tobacco use (including ST) exerts a huge economic burden in Pakistan and is linked to poverty. Therefore by addressing ST, our work will help achieve several other UN's SDGs in Pakistan with an overall impact in reduction of ST-related death and disability.

VI- CANCER

PREVALENCE OF MALNUTRITION IN THE NEWLY DIAGNOSED PEDIATRIC PATIENT AT SHAUKAT KHANUM MEMORIAL CANCER HOSPITAL AND RESEARCH CENTRE LAHORE

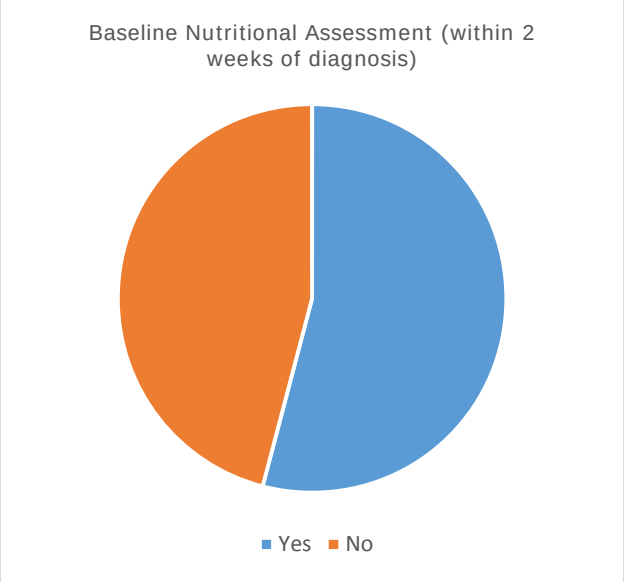
ABSTRACT

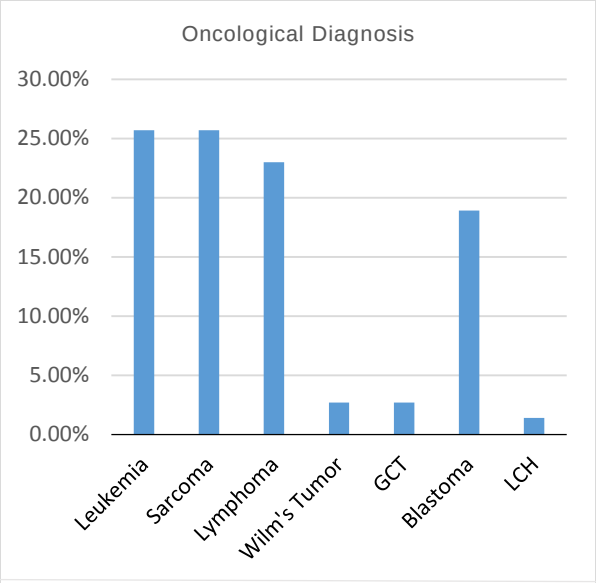
Background

Malnutrition serves to define an inadequate nutritional state, occurring due to insufficient or excessive caloric consumption and utilization of energy. Cancer patients often have reduced food intake due to systemic effects of the disease, adverse effects of treatment, alterations in nutrient metabolism and resting energy expenditure may also contribute to nutritional status. The purpose of the study was to estimate the prevalence of malnutrition in pediatric oncology patients at presentation, and what other factors prevail alongside

Method

74 newly diagnosed pediatric patients (47 Males; 27 Females), presenting at Shaukat Khanum Memorial Cancer Hospital and Research Centre in the first quarter of year 2019 were taken. The nutritional status including weight for age (growth percentile), anorexia, cachexia, socioeconomic status, compliance to nutritional advice and albumin level at the time of presentation were analyzed.





Results

The analysis of the results showed that overall 71.6% of patients were from low socioeconomic class and 27% were from middle class. Disease was metastatic in 12.2% patients. 21% patients were below 5th percentile. 54.1% of the total population was presented with decreased weight amongst which 37.8% patient were suffering from anorexia and 27% were cachexic at the time of presentation. Low albumin level was seen in 21.9% of patients. Out of the total population, 54.1% patients were referred for baseline nutritional assessment within first 2 weeks of diagnosis. Compliance towards nutritional advice was seen in 32.4% patients. Familial support was noted to be available to the patients at all times.

Conclusion

Many factors contributed as the precedent for malnutrition such as socio economic status and psychological impact of the illness, hence needs to be taken into account while planning for the intervention. The findings indicate that there is need to provide more nutritional education to the patient so they can better adapt to the situation.

DIETARY AND SOCIO DEMOGRAPHIC FACTOR CONTRIBUTING TO GASTRO INTESTINAL CANCERS AMONG THE PASHTUN POPULATION OF KHYBER PAKHTUNKHWA

ABSTRACT

BACKGROUND

Overall, the Gastrointestinal tract cancers (GI)s are responsible for more cancers and more deaths from cancer than any other cancers as reported by epidemiological studies. There is an increasing burden (incidence and mortality) in GI cancer worldwide and Pakistan is no exception. There is a serious paucity of studies and knowledge regarding the risk factors associated with the GI cancer in Pakistan. The current study was undertaken to determine the dietary risk factors among the newly diagnosed GI cancer patients born in KPK and have Pashtun background.

METHODOLOGY

This cross sectional study was designed to identify socio demographic, dietary and nutritional factors contributing to GI cancers (esophageal, gastric duodenal and colorectal excluding hepatic and pancreatic carcinomas) among the Pashtun population of Khyber Pakhtunkhwa. A sample of 100 newly diagnosed GI cancer patients were selected through simple random sample based on patients consent at the Institute of Radiology and Nuclear Medicine, Peshawar in the months of October to December 2018. The sample was investigated for socio demographic factors, food frequency, anthropometry, clinical examination for the presence of malnutrition and family dietary diversity

RESULTS

The study indicated a strikingly high prevalence of esophageal cancer as compared to colorectal, gastric and duodenal cancers. A shockingly higher percent of respondents in the sample indicated that the disease was more prevalent among females. Another feature was comparatively younger mean age among females as compared to males. Mean BMI was towards overweight side among females. Majority of the patients belonged to lower socio-economic class with complex, larger family sizes and education directly proportional to the disease rate. Food frequency indicated whole wheat as staple with higher meat, green and black tea intake on daily and weekly intakes. The weekly dietary diversity indicated higher scores for fried foods among males except for samosa and pakoras which was high among females. Legumes and vegetables intakes though were higher but lacked variety. The Varietal scores indicated diets lacked in food variety with saturated fats, refined white sugar, gur, fried foods on higher sides.

CONCLUSIONS

The study can be concluded with the findings that lower incomes, mass illiteracy among the females, intake of frequent hot beverages and fatty foods on daily basis, fried meats (among males) are the major contributing factors towards GI cancers among the residents of KPK. This alarming situation necessitates the attention of government to the introduction of nutrition education at all levels along promotion of female education in this region.

"EXPLORING PROBIOTICS ENCAPSULATED DRUGS TO AMELIORATE THE SYMPTOMS OF COLORECTAL CANCER"

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ABSTRACT

Novel health promoting approaches and emerging role of functional foods is one of the therapeutic tools to mitigate various health related ailments. In order to attenuate such health disorders probiotics as functional food were capitalized in recent research work. Probiotics are active microbial organism that imparts specific health advantage to human when utilized in sufficient quantity. The recent study was designed to enhance the lifestyle related quality of colorectal cancer patients. Their colorectal anticancer activity is mainly attributed to lowering intestinal pH, inactivation of carcinogenic compounds, alteration of intestinal microflora, anti-proliferative effect by apoptosis, and secretion of anti-inflammatory molecules and improving overall survival and quality of life. Potential of probiotics to ameliorate the symptoms of colorectal cancer symptoms was analyzed through provision of probiotics enriched food (yogurt) and *lactobacillus* supplements (capsules) for 8 weeks to the subjects undergone treatment of colorectal cancer followed by anthropometric, biochemical measurements and using functional assessment of cancer therapy (FACT) questionnaire. First of all, for the extraction *lactobacillus acidophilus* the sample and the media plates were incubated for 48 hours at 37°C. After 48 hours the colonies which obtained were characterized to confirm the growth of *lactobacillus* strains by staining and the purified colony was used to enrich yogurt. Then, for clinical trial the study groups and control were administered with probiotics enriched yogurt and supplements. The results of lipid profile were significant including cholesterol was changed from 222.19±9.55 to 217.61±8.38, LDL from 133.300±5.81 to 127.123±5.06 and triglycerides from 149.030±6.14 to 144.363±5.65. While probiotics supplements and food did not show any change in blood cells as the results were non-significant. The response code from every question based upon specific symptom was set between 0 (not at all), 1 (Little bit), 2 (somewhat) and 3 (Very much). The results of the recent study showed the significant results of probiotics on patients. Most of the response code was in the range of 0 and 1 after the completion of study. It is also concluded from the current work that probiotics enriched yogurt has more effect on symptoms as compare to supplements.

DIETARY HABITS OF UNIVERSITY GOING FEMALE STUDENTS IN COMPARISON WITH THE GUIDELINES OF MY PYRAMID

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ABSTRACT

Background

Students entering in Universities are at risk of malnutrition i.e. under nutrition or over nutrition depending upon a number of factors. The aim of this study was to assess and compare dietary habits of University female students with the guidelines of My Pyramid.

Materials and Methods

A cross-sectional study was conducted in different private and government sector universities in Lahore. 382 university going female students from the age of 18 years to 24 years were enrolled in study. Data was collected using a self-designed questionnaire from January 2019 to June 2019. Student's height, weight and age were asked in questionnaires. Socio-economic status and frequency of food consumption was recorded. Using SPSS, descriptive statistics were applied on data and results were summarized.

Results

From 341 university going girls, 31% skip breakfast, 35% girls skip lunch, 12% girls skip dinner and only a small fraction of 22% girls who are taking all three major meals regularly. 153 (40%) girls are satisfied with their dietary habits, 226 (59%) girls are not satisfied with their dietary habits and only 3 (1%) girls are neither dissatisfied nor satisfied with their dietary habits. 61% students do not consume any fruits but 39% students consume fruits.

Conclusion

Most of the university students are missing at least one meal a day. Consumption of fruits is very low among female students in university. A large proportion of female students are not satisfied with their dietary habits. Dietary patterns of university going students are far from the guidelines of My Pyramid.

Keywords: My Pyramid, Dietary Habits, Obesity.

IDENTIFYING PERCEIVED BARRIERS AND FACILITATORS OF PHYSICAL ACTIVITY AMONG ADOLESCENT GIRLS

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ABSTRACT

Background

The burden of non-communicable diseases (NCDs) among Pakistani population is increasing rapidly. Most of the NCD risk factors are behaviorally acquired as a result of unhealthy lifestyle during adolescent years. Lack of physical activity among adolescents is one of the major risk factor for development of NCD such as cardiovascular disease and type 2 diabetes, later in life. This study was undertaken to explore adolescent girls' perception, practice, barriers and facilitators to physical activity.

Methodology

An exploratory qualitative study using Focus Group Discussions (FGD) methodology was conducted. Adolescent girls of different socioeconomic status and education level were enrolled in 5 FGD after proper written informed consent. FGDs were audio-taped and noted, followed by transcription, coding and thematic analysis.

Results

Thematic analysis identified barriers to physical activity at personal, socio-cultural and environmental levels: Personal (Hectic lifestyle; Preference for technology related activities; Lack of awareness; lack of motivation), Environmental (lack of green environment; extreme weather), Socio cultural (safety hazards; no partner; lack of culturally appropriate facilities; lack of encouragement from family and friends). Whereas four identified facilitators were: Green environment; educational institutes; Awareness and Policy at government level.

Conclusion

Adolescent girls misconnected physical activity with hectic lifestyle. They faced barriers at personal, environmental and socio cultural levels which prevented them from incorporating physical activity in their daily lives. Results from this study can be utilized to overcome the barriers and focus on the facilitators while planning and promoting physical activity programs among adolescents for prevention of NCDs later in life.

SECTION THREE-POSTER PRESENTATIONS

I- CARDIOMETABOLIC

THERAPEUTIC IMPACT OF ESSENTIAL OILS IN AMELIORATING CARDIOVASCULAR DISEASES

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Cardiovascular diseases are the most prevalent non-communicable diseases. Cigarette smoking is a major cause of CVD and has been responsible for approximately 140,000 premature deaths annually from CVD. More than 1 in 10 deaths worldwide from CVD are attributed to smoking. Essential oils (EO) are complex secondary metabolites, which are produced by aromatic plants and identified by their powerful odors. There are various chemical compounds responsible for the therapeutic effects of essential oils. Among them, mono-terpenes are considered as the main and the most significant group of active compounds in aromatic plants. EOs play significant role in promoting cardiovascular system health by preventing, improving and ameliorating the adverse impacts of hypertension and atherosclerosis. Linalyl acetate and linalool, the major constituent of several aroma essential oils regulates cardiovascular responses and helps in decreasing heart rates in hypertension. Hence, they could be promising agents for CVDs inhibition and/or treatment.

ASSESSMENT OF DIETARY FIBER CONSUMPTION IN ADULTS OF AGE 30-39 YEARS

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Abstract:
Background: Fiber has protective health maladies. The present study was conducted to assess the fiber consumption among adults of age 30-39 years.
Objective: The main objective of the study was to find out the knowledge of adults about fiber and its importance. The study also aimed to assess the fiber consumption.
Methodology: It was cross sectional study survey and carried out on 70 conveniently selected adults from different areas. The questionnaire was formulated and distributed. The data was analyzed through tabulation and percentages.

Results: The data of study revealed that 70% of people know what fiber is and 77% of adults know its importance and according to 54% of adults vegetables are the best source of fiber and 34% think that it improve digestion and 28% adults said it prevent heart disease and obesity.
Conclusion: It was concluded that adults of age between 30-39 years were aware about the importance of fiber and its consumption but many of them were not consuming fiber adequately.
Key words: Dietary Fiber, Heart disease, Obesity

OBESITY: MAJOR CAUSE OF HEALTH HAZARDS IN CHILDREN AND ADULTS

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Abstract:

Obesity is the most common non communicable disease. Obesity is the cluster of many symptoms like high levels of low density lipoproteins (LDL) and low levels of high density lipoproteins (HDL). Obesity is mainly caused by the high blood pressure, sedentary lifestyle, unhealthy eating, and consumption of zero calories and to some extent it runs in the genes. Obesity leads towards the 'Diabesity' which is defined as the obesity leading towards diabetes. Diabetes is the most threatening disease in this era and obesity is the main reason for that. Obesity impairs the functioning of beta pancreatic cells and causes both type 2 diabetes and gestational diabetes. Adult obesity leads towards fatty liver disease, insulin resistance, sleep apnea, glucose intolerance, gallstones and pre-mature deaths. Obesity accumulates the excess fats in body and causes many heart related problems like arrhythmias, ischemia, atherosclerosis etc. Childhood obesity is more hazardous than adult obesity; it leads towards psychological problems, social problems like bullying and overall low quality of life. It is a need of hour to control the high prevalence of obesity by adapting different strategies. First of all, avoid fad diets as much as one can. Focus on healthy diets, rich in complex carbs, moderate protein and low fat intake. Support the community environment which encourages the healthy eating habits and daily physical activity. For children, it is necessary to restrain them from junk foods and cola drinks. It's time to motivate children to include diet rich in iron, calcium, zinc, vitamin C and vitamin A. At last, behavioral modification is required for the people having BMI more than 29.9kg/m^2.

Key words: Obesity, Diabesity, HDL, LDL, Diabetes, Fad diets

PRESENTATION TOPIC: KETOGENIC DIET FOR WEIGHT LOSS, FOLLOW OR NOT TO FOLLOW THAT IS THE QUESTION

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Background

Obesity is a major health problem due to morbidity and mortality associated with risk factors like hypertension, diabetes, cardiovascular disease, kidney disease and cancer. Advances in medical science have led to treatments options for these disorders, yet simply achieving weight loss leads to better outcome when primary cause of these disorders was obesity. Weight loss is best achieved by reducing energy intake and increasing energy expenditure through life style modification techniques which are well researched and have proven to improve health parameters.

Other contemporary methods for weight loss that have evolved over a period of time are , medications, surgery , herbal preparations and diets like ketogenic diet for weight loss . ketogenic diet have known to exist since ancient time but mostly for treatment of epilepsy , interest in this diet dwindled in last century due to discovery of antiepileptic drugs . Later on interest in diet revived in 1990s due to famous cured epilepsy case of Charlie Abraham. Success of ketogenic diet for epilepsy patients led to this diet been used in other modalities including obesity

Methodology

Classic ketogenic diet is composed of 90% fat, 5 % proteins and 5% carbohydrates caloric restriction increases ketone production which is used as alternate fuel by body. Recently some research data has shown that beta hydroxybutyric acid produced as byproduct of ketone bodies is superior energy fuel, it acts like hormone leading to reduction in oxidative stress,

Results

Well formulated ketogenic diet tends to have beneficial effects on metabolic syndrome, type 2 diabetes, cancer, Alzheimer's and sports performance.

Conclusion

A ketogenic diet improves metabolic syndrome, insulin resistance, anti-inflammatory in cancer.

INTER-LINKAGE BETWEEN CIRCADIAN RHYTHMS, OBESITY AND NUTRITION

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Abstract

Many biological processes, ranging from metabolic pathways to physiology and behavior exhibit 24 hour rhythms driven by endogenous circadian clocks. Increased morbidity occurs due to prolonged desynchrony of circadian rhythms. Studies at cellular level demonstrated that rhythms and metabolism are intimately linked across multiple levels of human biological organization. Polymorphisms of human clock genes and their associated haplotypes have been linked with multiple metabolic disorders, including obesity and type 2 diabetes. In an animal model of disrupted circadian rhythms with "Clock mutant" various altered expression were observed that leads to obesity such as liver-specific clock disruption causes altered glucose metabolism, pancreas-specific clock disruption results in hyperglycemia as a result of reduced insulin secretion, skeletal muscle-specific clock disruption leads to decreased insulin-dependent glucose uptake in skeletal muscles and also altered muscle glucose metabolism. The disruption of the clock in white adipose tissue induces obesity that might be due to abnormal polyunsaturated fatty acid secretion from adipocytes regulating hypothalamic appetite centers and causing increased feeding during the resting phase of the day. The timely food intake has many physiological consequences including protection against the obesogenic and metabolic consequence. In healthy subjects, glucose tolerance lowers throughout the day, leading to the term 'afternoon diabetes'. In addition, lipid metabolism exhibits circadian regulation, with elevated plasma concentrations of triacylglycerol during the biological night and an elevated postprandial response following night-time meal compared with the same meal consumed during the day. Research linking daily rhythms, obesity and its risk factor has gained a great deal of momentum over recent years. But many important challenges lie ahead; these include translation to human physiology, functional relationship with pathophysiology and links with nutritional physiology.

ROLE OF LIFE STYLE MEDICINE IN PREVENTION OF NON COMMUNICABLE DISEASES

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Lifestyle medicine is a new emerging branch of medicine which focuses on prevention of disease, it's not complementary or alternative—it's mainstream, The Lifestyle Medicine Global Alliance, defines lifestyle medicine as "an evidence based medical specialty" that uses "lifestyle therapeutic approaches" to prevent,

treat, or modify non-communicable chronic diseases—the disease area that accounts for 71% of deaths worldwide. Key to the delivery of lifestyle medicine is the ability to help people make sustainable lifestyle changes through behavioral changes and management techniques. The vast majority of chronic non-communicable diseases are caused by gene-environment interactions but behavioral and environmental factors trigger illness, the nature of which is determined by our genetic architecture. Too much of the wrong food, prolonged stress, lack of physical exercise, bad sleep, smoking, and toxins are the most important "exogenous" triggers. Indeed, the environment is paramount in the pathogenesis of chronic disease.

The diagnostic process needs to include the socio-economic, mental, spiritual, and behavioral aspects of a patient's life in addition to biological markers of health and disease.

Key words; Life style medicine, non-communicable diseases, behavioral and environmental factors.

PAKISTANI ADOLESCENT FEMALE LIFESTYLE PATTERNS

Background:

NCDS are estimated to account for more than half of all deaths in Pakistan. According to WHO 4 major behavioral risk factors are leading to a constant rise in NCD burden which include; tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets. The aim of this study is to locate which one of these patterns are most recurrent among Pakistani adolescent girls contributing to the disease as well as the economic burden of NCD's.

Objective: To study the lifestyle patters of Pakistani adolescent females and shed light upon their roles as risk factors for NCD's with suggestive interventions.

Methodology: A systematic search was carried out using Google Scholar and appropriate work was considered, done in the time frame of last 5 years.

Conclusion: This study will inform the readers of the problematic patterns that have been incorporated in the daily routine of our youth (specifically females) and how their reduction can lead towards a reduced NCD prevalence as well as a decreased economic burden.

PATHOGENESIS OF CARDIOMETABOLIC SYNDROME (CMS) AND ITS PREVENTIVE MEASURES

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Abstract

The cardiometabolic syndrome, an interesting constellation of maladaptive cardiovascular, renal, metabolic, prothrombotic, and inflammatory abnormalities, is now recognized as a disease entity by the American Society of Endocrinology and World Health Organization. CMS patients are two times more likely to die from coronary heart disease and three times more likely to have a heart attack or stroke than those who do not have the syndrome. Central adiposity is a major contributor to increased cardiometabolic risk. Visceral fat is the result of an imbalance between energy intake and expenditure. It is metabolically active tissue that produces various proinflammatory and prothrombotic cytokines. Basic pathophysiology involves the alterations in number or density of mitochondria and their oxidative mechanism that leads toward the development and progression of metabolic syndrome. The defective oxidative metabolism seems to be involved in visceral fat gain and the development of insulin resistance. Adiponectin is a fat protein from adipose tissue it has cardioprotective, anti-inflammatory and antiatherogenic properties. The hypoadiponectinemia also explain the pathophysiology of metabolic syndrome in human body. The therapeutic strategy design according to pathogenesis of CMS will help in curing the disease. Established and evolving treatment strategies including moderate physical activity, weight reduction, rigorous blood pressure control, correction of dyslipidemia, and glycemic control have proven beneficial in reversing these abnormal responses and decreasing the CVD risk.

NUTRITIONAL AND LIFESTYLE MODIFICATIONS OF PCOS IN OBESITY

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Abstract

Polycystic ovary syndrome (PCOS) is an endocrine-metabolic disorder characterized by polycystic ovaries, chronic anovulation and hyper-androgenism leading to signs of menstrual irregularity, infertility and hirsutism. Insulin resistance, obesity and high levels androgens are linked with PCOS. The contributory factors include lazy standards of

living, dietary dissimilarities, lack of exercise and anxiety etc. There appears to be an epidemic of both obesity and polycystic ovary syndrome (PCOS) in the world today. Obesity is not a cause of PCOS, as the high prevalence of PCOS among relatively thin populations demonstrate. However, obesity does worsen many aspects of the phenotype, especially cardiovascular risk factors such as glucose intolerance and dyslipidemia. It is also associated with a poor response to infertility treatment and likely an increased risk for pregnancy complications in those women who do conceive. Although most treatments of obesity, with the exception of bariatric surgery, achieve modest reductions in weight and improvements in the PCOS phenotype, encouraging weight loss in the obese patient remains one of the front-line therapies plus life style modification is also very encouraging. However, new studies are required to identify the best interventions, and the role of lifestyle therapies in women of normal weight with PCOS is uncertain.

NON-COMMUNICABLE DISEASES; A GROWING THREAT TO GLOBAL HEALTH

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ABSTRACT

The World Health Organization (WHO) has identified non-communicable diseases (NCDs) as one of the twenty-first century's major challenges in 2030 Agenda for Sustainable Development. NCDs become the main cause of premature deaths (44%) worldwide and preposterously affect people living in low and middle-income countries where more than three quarters of global NCD deaths (32 million) occur. According to a rough estimation, world will lose $30 trillion by 2030 in the treatment of NCDs, representing 48% of global GDP. Major contributors for NCDs deaths involve cardiovascular disorders (38%), cancer (25%), respiratory diseases (9%) and diabetes (6%). NCDs are no longer considered exclusively a result of single contributing factor but actually there is a combination of genetic, lifestyle, physiological and environmental factors that can make the people vulnerable towards NCDs. Current scenario strongly demands the additional and timely action and policies, especially those of a legislative and regulatory nature and those providing cost-effective chronic care for individuals affected by NCDs. Global Non-communicable Disease Network (NCDnet), NCD Alliance, United Nations Interagency Task Force on the Prevention and Control of Non-communicable Diseases (UNIATF) and Young Professionals Chronic Disease Network are

some appreciable global efforts for the prevention and control of NCDs. Biotechnology on the behalf of medical and biosciences, plays its role as introducing the innovative diagnostic and treatment approaches based on monoclonal antibodies, recombinant proteins, regulatory nucleic acids and cell-based therapies for regenerative medicine. However, implementation and desired outcomes of mentioned legislative policies and medical approaches for the diagnosis, prevention and treatment of NCDs are still major challenge for their respective organizations which will be overcome through appropriately targeted interventions.

Keywords: World Health Organization, non-communicable diseases, sustainable development and biotechnology

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GENDER-BASED APPROACHES FOR THE PREVENTION AND CONTROL OF NON-COMMUNICABLE DISEASES

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ABSTRACT

Gender norms and gender roles and activities have become the origin for the differences in the prevalence of non-communicable diseases (NCDs). Women and men marked NCDs symptoms and risks differently depending upon the exposure and vulnerability to NCDs risk factors. Gender inequality index of NCDs put the women on higher risk as it has been the leading cause of death among women worldwide for at least the past three decades. According to World Health Organization, women are at greater risk for obesity, cardiovascular disorders, diabetes and osteoarthritis due to disparities in socioeconomic factors between men and women. Depending upon the gender specific physiological response to risk factors, woman likely to develop lung cancer earlier than man if exposed to smoking in similar amount and duration. Unhealthy diet, physical inactivity, tobacco and alcohol are the main four NCDs risk factors for men and women. Early diagnosis of NCDs is not possible in women due to their submissive social status and lack of decision power pertaining to health expenditures in low and middle income countries as they are not well-aware of their nutritional needs, importance of screening for diseases (such as breast cancer) and severe consequences of health disorders. Therefore, women are influential partners in the fight against NCDs and should be provided with equal opportunities to nutrition,

health and education. Their role as care-givers, sex-specific susceptibility to health problem and as an agent of change, women need special attention in health agendas. Empowering women with easy and equitable access to knowledge and resources will strengthen their capacity to prevent NCDs in their families, better safeguard their own health, lower the future healthcare costs and will improve productivity.

Keywords: Non-communicable diseases, gender inequality index, cardiovascular disorders, lung cancer and submissive social status

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CARDIOVASCULAR DISEASES' RISK ASSOCIATION WITH AGING IN WOMEN

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Abstract

Cardiovascular diseases develops seven to ten years later in women as compared to men but it is major cause of death in women. The first heart attack on average strikes women at the age of 72 and for men, the average age of a first heart attack is 65. However, after the onset of first heart attack 47% of women develop heart failure, stroke or die than 36% of men within 5 years. Life expectancy is two years low in women with menopause before 40 years as compared to women with normal menopause. Seven times more risk is there in women with estrogen deficiency at young age. Estrogen helps in regulation of numerous metabolic factors like inflammatory markers, lipids metabolism and coagulation system. Vasodilation is promoted by estrogen through the and β receptors in the vessel wall. Increase in body weight is observed during initial years after menopause and fat distribution in body changes from gynoid to more android pattern. Systolic blood pressure increases more steeply in women and it can be linked with reduced estrogen levels, up regulation of the renin-angiotensin system, and increased activity of plasma renin, more salt sensitivity and sympathetic activity. At older age (>75 years), systolic hypertension is more in females leading to left ventricular hypertrophy, strokes and heart failure. At young age, women have lower risk of hyperchplestermia and heart diseases but after menopause low density lipoprotein

(LDL) and total cholesterol is increased by 14% and 10%. It can be summarized that heart diseases strike men at younger ages than women, but survival rates are worse in women. The under recognition of heart diseases lead to increased risk of death and disabilities. There is need to monitor the risk factors carefully after 40 years of age to prevent the risk of deaths due to CVD's.

Key words; Life expectancy, menopause, estrogen and heart failure

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PREVALENCE OF METABOLIC SYNDROME IN YOUNG ADULTS USING RECOMMENDATIONS FROM THE INTERNATIONAL DIABETES FEDERATION (IDF)

Presenter: Aymen Mehboob
Affiliation: UVAS Lahore

Abstract

Objective: Metabolic Syndrome "MetS" is considered as a multifactorial condition that plays a crucial role in the cascade of severe ailments including cardiovascular diseases and diabetes mellitus in both developed and developing countries. The primary aim of this study was to evaluate the prevalence of MetS in young adults (18-25years) to establish the prevalence of Mets and its components in overweight and obese young adults using International Diabetes Federation criteria.

Methodology: A cross-sectional study was conducted to evaluate the primary risk factors associated with MetS and its related components (relationship of demographic features, anthropometric indicators, and biochemical & physical parameters) among young adults in the vicinity of Lahore in accordance with the approval of the ethical committee. Data were collected from 380 (male and female) young adult's (18-35 years) on a two-stage random sampling technique. Weight, height, waist circumference, hip circumference were determined. Anthropometric indicators were also calculated.

Results: Results revealed that out of 380 individuals (who were initially screened for central adiposity) 84 declared overweight and obese, of which 17.8% were obese females whereas 7.1% were obese males. 41.6% of females were found overweight while 33% of the male were overweight. We also reported that 11 subjects (13% of 84) had blood glucose less than 100mg/dl while 73 individuals (87% of 84) had blood glucose greater than 100mg/dl respectively. Similarly, 42.8% females found to have reduced HDL levels i.e. of <50mg/dl whereas 25% males presented with HDL <40mg/dl. The overall prevalence of metabolic syndrome in individuals (18-35years) was

evaluated as 21%. Our study revealed that female were at significantly higher risk of metabolic abnormalities as compared to male counterparts.
Conclusion: Results obtained from this study can be used to notify concerned authorities to develop policies, educational programs and lifestyle modifications strategies to combat future complications and liabilities related to metabolic syndrome.

ECONOMIC BURDEN OF OBESITY

Aania Rafi, Sila Shahid

Background: In Pakistan, non-communicable diseases account for more than half of all deaths. The World Health Report 2010 states that each year, 100 million people are pushed into poverty because they have to pay directly for health services; in some countries, this may represent 5% of the population forced into poverty each year. According to research in Pakistan, an estimated direct cost of diabetes and heart diseases due to excess weight summed up to be 72,881,252,911 (in Rupees) whereas the estimated indirect cost was 356,786,277,607 (in Rupees) (2015). One of the major modifiable risk factor for NCD's is stated to be raised BMI. The prevalence of overweight and obesity in Pakistani population is 26.3% (27.5 million) and 14.9% (15.6 million), respectively; which can be reduced through lifestyle modifications.

Objective: To explore lifestyle modification as a preventive measure for overweight/obesity and other related non-communicable diseases which in turn will help reduce its disease as well as economic burden.

Methodology: A systematic search was carried out on Pub-Med for full-text researches and on Google for published reports in the time frame of the last 5 years and appropriate work was considered.

Conclusion: This study would propose lifestyle modification interventions that can assist in prevention of raised BMI and hence reduce its economic burden.

II- DIABETES

THE IMPACT OF TEACHING CARBOHYDRATE COUNTING TO TYPE 1 DIABETES PATIENTS IN IMPROVING THE QUALITY OF LIFE AND BETTER BLOOD GLUCOSE CONTROL

Moti Khan, The Aga Khan University Hospital, Karachi Pakistan.

Background:
Carbohydrate counting is a practical way of controlling the blood sugars especially in type 1 diabetic patients; it involves the serving of carbohydrate in meal to match the bolus insulin doses for better blood glucose control.

Methodology
Carbohydrate counting teaching was initiated in endocrine clinic, type 1 diabetes patients were referred to dietitians to learn carbohydrate counting in their daily meals. A concept of group teaching was developed involves an introductory lecture by a Dietitian addressing the objectives of understanding the concept of basic carb counting, Insulin to Carb Ratio (ICR), identifying the main dietary sources of carbohydrates ,reading food labels and identify the meal portions using food models.

Results
In this study, type 1 diabetic patients were selected based on the number of clinic visits to a dietitian for teaching on carbohydrate counting methods and attended Carbohydrate counting workshop conducted in Hospital as group teaching, individually, patient's data was collected in which the number of hypoglycemic episodes pre Carbohydrate counting teaching was 3-4 per week which reduced to 0-2 post CC teaching, the empowerment over disease rating from scale 1-10 pre CC teaching was 1-2 and post CC teaching scale was 8-9 as a significant result and the average HBA1c pre CC was 8.3% - 9.0% which reduced to 7.5%-7.8%.

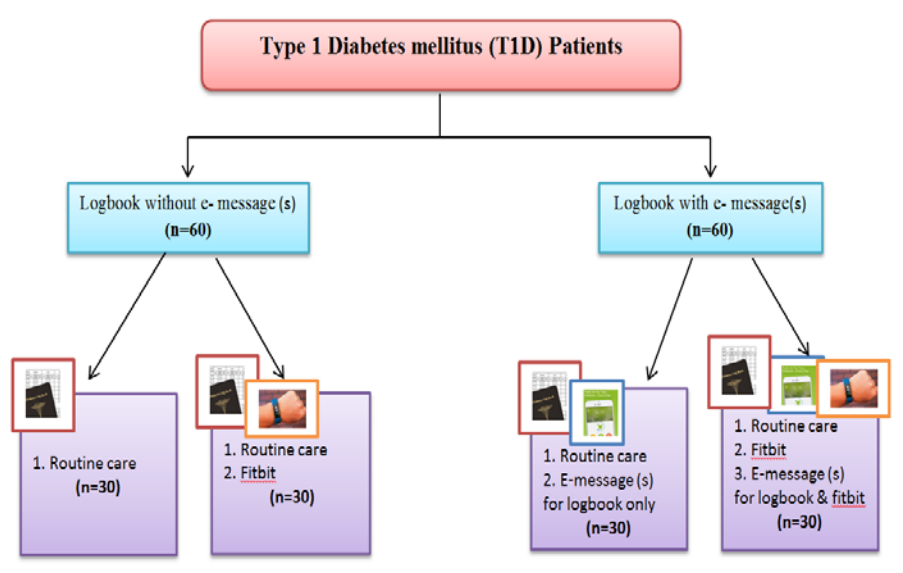
Conclusions:
It is hoped that carbohydrate counting teaching to type 1 diabetic patients will help practitioners and dietitians to practice this technique which will significantly help the patients empowered over disease, better blood glucose control and quality of life.

LIFESTYLE CHANGES AND GLYCEMIC CONTROL IN TYPE 1 DIABETES MELLITUS: A FACTORIAL DESIGN APPROACH.

Azam SI, Siddiqui AR, Ahmed A, Humayun KN, Khan AH, Sawani S, Iqbal R.

Type 1 diabetes (T1D) is a challenge, for patients and caregivers, as hypoglycemia and ketoacidosis are acute complications. Incidence of T1D has been increasing globally over the past three decades. Reports from Pakistan draw attention to non-adherence

of T1D patients to dietary advice (58.5%), physical activity (42.3%) and insulin regimen (88.1%). Use of mobile applications help to increase medication adherence and self-monitoring of blood glucose (SMBG). A wearable wrist e-device (Fitbit App) tracks step count by recording data in mobile application. HbA1c levels acts as an indicator for the glycemic control and correlates with complications. A factorial design approach will be taken to study the lifestyle change for self-management of T1D. A randomized controlled trial will enroll T1D patients of > 14 years in four groups. All groups will keep a log book per advice from routine care given by endocrinologists, nurses, and nutritionists. First group will follow routine care, to be compared to second group with step count e-device, third group with e-messages as reminders for maintaining logbook, and fourth group for step count by e-device plus daily e-messages. Log book data will be obtained at a monthly interval and HbA1c as a main outcome will be measured three times, at baseline, three and six months to study the time trends. Likewise we will conduct 24 hour dietary recall every three months to assess nutrient intake by gender and glycemic markers. Expected results will increase adherence to SMBG, insulin therapy, and blood glucose levels; optimizing HbA1C levels, and reduction in acute complications in low income settings. (Figure shows the factorial design approach)



GETTING GLUCOSE TO GOAL IN THE COMMUNITY

Shafiq Lokhandwala

Diabetes is a huge problem, globally. The cost of diabetes care is phenomenal and there is a significant economic toll in money spent, productive lives compromised, and health care resources consumed in caring for this chronic disease. The numbers are staggering. 228 million people already have diabetes worldwide. Using Pakistan as an example, the incidence of diabetes is increasing by 170% in developing countries and estimated to affect 14.5 million in Pakistan by 2025. 77% of people with diabetes will live in low/middle income countries. This threatens their valuable asset… its young population. 35.7 % of the population is between 25-54 years old. What is alarming is that in Pakistan, 48% of deaths due to diabetes occur in people < 60 years old. This threatens bread winners, mothers, and homemakers. Type 2 diabetes is familial, and a positive family history increases the risk of diabetes by 3-fold. This risk is increased by 7-fold with positive family history and being over 30 years old.

According to the 2017 Census Islamabad Capital Territory has 2,006,572 growing at 4.91% per annum; Neighboring State Punjab has 110,012,442 growing at 2.13% per annum; and Neighboring State Khyber Pakhtunkhwa has 30,523,371 growing at 2.89% per annum.

Glucose Trail henceforth referred to as (GT) has the following purpose:

Get Glucose to Goal in your Community

Innovation of the Glucose Trail (GT) diabetes care solution is providing a platform that takes planned diabetes care into the community, pulling together all the critical elements of a comprehensive diabetes care solution, engaging people who are part of the care, harnessing existing resources in the community.

Important components of this innovation include:

1. Health Care Companion: The Health Care Companion (HCC) is central to this project. A HCC is a responsible member of the community who has volunteered to take on caring for their family members and neighbors for a nominal stipend. The HCC fulfills three important tasks:

-Empower patients through education including promoting healthy diabetes diet, consistent daily physical activity, tobacco cessation and adherence to a prescribed medication schedule.

- Provide emotional support as they are some body close to the patient, who understands their circumstances, who can relate to “their life” to support them.

- Collect and enter critical, actionable patient data into a mobile app enabling remote patient assessment, follow-up and titration of treatment plan.

2. A mobile app: Glucose Trail App henceforth referred to as the GT App that connect a remote physician, the patient and a health care companion and organizes critical data required for remote care. Objective goals are checked and reviewed on a

regular consistent basis to measure progress, holds the physician, the care team and the patient accountable. Version 2, in development is using learnings from the pilot to enhance user interface, monitor well defined goals and expand the digital platform to connect community members.

3. Sourcing reliable and affordable pharmaceuticals and diagnostics. Consistent, accessible and affordable pharmaceuticals, from certified manufacturers, endorsed by Endocrine Societies, WHO guidelines for low resource settings and vetted reliable lab facilities will be negotiated as a bulk order on behalf of the community.

4. Community mobilization: Diabetes camps were held to recruit patients at baseline, enhance community participation, prioritizing lifestyle as a powerful therapy, knowing diet and physical activity are difficult to prescribe requiring patient engagement with community support. The camps were intended to engage local entrepreneurs such as pharmacists, grocers and recreational start-ups. The expected outcome was that such businesses would be seeded, supported and advertised to encourage the community to effectively use their own resources thus shifting health care expenditure from external clinics and hospitals to local community vendors.

The presentation for the conference will present the results from a paper written as the culmination of a year-long GT pilot in Pind Begwal – a semi-rural area close to Islamabad. The presentation will consist of following.

1. Starting the Pilot
2. Operation and Execution
3. Impact Analysis, Growth Potential and Value Provided
4. Lessons Learned
5. Scaling Potential and Impediments

ASSOCIATION OF OBESITY WITH SLEEPING HABITS AND EVALUATING THE CALORIC CONTRIBUTION OF MACRO-NUTRIENTS IN DIFFERENT SLEEPING GROUPS: A MULTI-ETHNIC GROUP STUDY FOR PAKISTANI WOMEN

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Background: Obesity is a multifactorial disease which has increased dramatically throughout the world in the past few years. There are many genetic, environmental, social and cultural factors associated with obesity. Amongst these the modifiable risk factors have long been the centre of interest for scientists to overcome the burden of this disease.

Objective: The present study is aimed to provide assessment of obesity among Pakistani women belonging to three different communities and examine their association with

sleeping habits. It is also aimed to evaluate the caloric contribution from macronutrients amongst different sleeping groups.
Methodology: This cross-sectional study was undertaken on 322 women, aged between 18-60 years, living in Karachi and belonging to Aga Khan, Dawoodi Bohra and Memon ethnic groups. Sleeping behaviours were assessed through structured interview-cum-questionnaires. Binary logistic regression was used to find possible associations between obesity and sleeping habits.
Results: In the present study, overall 43.2% women were found to be generally obese and 57.8% to be centrally obese. Obesity prevalence within the community was found to be greatest in women of Aga Khan community (43.2%) followed by Memon (30.2%) and Dawoodi Bohra (26.6%) community. Almost half of the study population was noted to be: insufficient sleepers, 62.7% were midnight sleepers and 42.9% undertook siesta habit. An obvious link was recognized between short sleep duration, midnight sleeping and obesity. Protective effect of siesta on obesity was also established. Higher BMI, WC and WHR were observed in short sleepers. Insufficient sleep was significantly associated with higher intake of calories from fat and lower from carbohydrates and protein, after adjusting for potential confounders.
Conclusion: Our findings revealed a definite association between obesity and sleeping practices. Moreover, it was suggested that insufficient sleep promotes unhealthy dietary behaviours and stimulates higher caloric intake from fat, eventually endorsing an obesogenic environment.
Keywords: Obesity, sleeping habits, calories, Pakistan.

TITLE: ROLE OF DIETARY FIBER IN THE PREVENTION OF TYPE 2 DIABETES

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Abstract
Background
A high level of dietary fiber intake has health-protective effects and disease-reversal benefits. Inadequate intake of dietary fiber has been associated with increased risk of diabetes, hypersensitive, stroke and coronary heart disease. Furthermore, increased consumption of dietary fiber aids in improving the glucose control in diabetes and mainly plays a role in the prevention of type 2 diabetes.

Introduction
The prevalence of type 2 diabetes has increased rapidly during the past few decades around the globe and has become one of the major concerns. The quality of diet has a significant relation with type 2 diabetes. Dietary fiber are the highly complex substances consisting of nondigestible carbohydrates and are not degraded in the upper gut. These are classified as souble and insoluble dietary fiber based on their solubility in

water. Soluble fiber being viscous and exhibit gel forming properties while insoluble fiber being non viscous and exhibit non gel forming properties. Sources of soluble fiber includes fruits, vegetables, psyllium and berries while insoluble fiber sources include whole-grain and bran products.

Objective

To examine the association between dietary fiber intake and type 2 diabetes

Methodology

A meta-analysis of prospective studies include 328,212 subjects confirmed with type 2 diabetes. A semi quantitative food-frequency questionnaire helped to assess the dietary intake of diabetics. The sources of dietary fiber were being assessed and leaded to the results.

Results

The results indicated that the diet high in insoluble cereal fiber or whole-grain products significantly reduced the risk of type 2 diabetes by 20-30% as compared with the diet high in soluble dietary fiber. The insoluble cereal fiber also aids in reducing the insulin resistance thus preventing type 2 diabetes. The current study is conducted through different electronic media like PubMed, Scopus, Medline, webbed and some books from 2015-2019 published years.

Conclusion

Human studies showed a positive correlation of insoluble dietary fiber intake and lower risk of type 2 diabetes.

Recommendation

A future study is needed for the mechanical insight of soluble fiber intake and its association with the type 2 diabetes.

Keywords:

Type 2 diabetes, dietary fiber, insoluble cereal fiber, insulin resistance, glucose control

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EFFECT OF NUTRITION EDUCATION ON DIETARY COMPLIANCE OF PRE-DIABETICS

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Background: Pre-diabetes or borderline diabetes, a condition characterized by impaired fasting glucose and impaired glucose tolerance is a wakeup call to forestall the path leading to diabetes and its related complications. Nutrition education is

thought to be a cornerstone in the prevention of chronic diseases. Intervening at right time through nutrition education will help to minimize the risk of diabetes. The objectives of the research include assessment of dietary practices of pre-diabetics and to evaluate the effectiveness of nutrition education on dietary compliance.

Methodology: It was a randomized pretest-posttest control group design conducted at a local diagnostic Centre in Lahore. Thirty four pre-diabetics out of 400 were identified through diabetes awareness camps in a two-step process which included standard diabetes risk test and fasting blood glucose levels (100-125 mg/dl) and then randomly assigned into control (n=17) and experimental group (n=17). Nutrition education was imparted to experimental group through audio-visual and demonstration lectures. A lecture was delivered after every two weeks (total 4 lectures in 2 months). Changes were analyzed with paired t test (within groups) and independent t test (between groups). Statistical significance was determined at a level of p= 0.05.

Results and Findings: The results showed positive effect of nutrition education on dietary compliance evident by significantly reduced total calories (-12.6%, p=0.00), CHO (-3.63%, p=0.01) and fat intake (-5.03%, p=0.01) whereas protein intake was statistically increased (23.38%, p=0.00) and FBG levels (-4.52%, p=0.02) were improved in experimental group as compared to control group. When intervention effect (percent difference) was observed between groups only total calories and protein intake was statistically significant (p=0.00) after two months of nutrition education. Moreover, compliance goes up with increasing education level and importantly in extremely obese people.

Conclusions: Nutrition education can definitely improve dietary compliance in pre-diabetics if good nutritional and lifestyle counseling is done.

THE PREVALENCE OF THYROID DYSFUNCTION IN DIABETES MELLITUS: A CASE STUDY OF THE PAKHTUN POPULATION OF KHYBERPAKHTUNKHWA

BACKGROUND

Diabetes mellitus is commonly associated with thyroid dysfunction. Both of these conditions coexist as both the conditions involve endocrine system. Thyroid disorders can have a major impact on glucose control and untreated thyroid disorders affect the management of diabetes in patients. The major objective of this study was to evaluate the prevalence of thyroid dysfunction in relation to glycemic regulation and nutritional status which are greatly influenced by dietary intake.

METHODOLOGY

The study was conducted at Khyber Teaching Hospital, Peshawar. About 150 patients admitted in the diabetes ward were selected on consent based convenient sampling method. The sample was subjected to demographic assessment along the A (anthropometry), Biochemical tests for triiodothyronine, thyroxine, thyroid stimulating

hormone, and Hb A1C. The sample was assessed for the clinical symptoms of malnutrition, a retrospective dietary intake through FVS (comprising 134 items), and the psychological impacts through DAAS (Depression, Anxiety and Stress) Scale. The data collected was analyzed for ANOVA, Correlation and a regression model was developed to evaluate the multivariate effects.

RESULTS

The data indicated that patients admitted for diabetic complications were mostly from rural background with the lower to middle income levels, sedentary occupations while almost all the female sample was house wives. The data indicated that more 30 percent of the male while 38 percent of the female sample had undiagnosed thyroid dysfunction (either hypothyroidism or hyperthyroidism). The astonishing findings was that the sample's age was quite young (42 years in males and 41 years in females) as compared to other studies. Anthropometric data showed BMI of female patients on overweight side (26 ±3.0).Regression values of Hb A1c as a predictive for elevated or lowered T3, T4 and TSH values were 0.001, and 0.000 each. Similarly the co. efficient of correlation thyroid dysfunction with FBS, RBS and Hb A1C. The food variety scores for the protein foods, fresh vegetables, fruits were very low on 134 food scale. Mean dietary diversity per week scores for these foods were also quite low.

CONCLUSION

The study was concluded that co morbidities are quite common among the Pashtun diabetic population. Thyroid dysfunction as a result of un regulated blood sugar levels can be a leading cause other metabolic and endocrine disorders

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FUNCTIONAL DISABILITY IN PATIENTS WITH DIABETES AND RELATED COMORBIDITIES

Abstract

Background: The presence of diabetes and related comorbidities can intensify treatment demands and adversely impact functional capacity. The goal of our study was to estimate the prevalence and association of functional disability in patients with diabetes and related comorbidities attending diabetes clinic in Karachi.

Method: A hospital-based cross sectional data of 800 adults were analyzed. Three categories were created including: diabetes and no comorbidity, diabetes with one-comorbidity and diabetes with two or more comorbidities. Prevalence of functional disability was computed and multi-logistic regression was used to determine the odds of functional disability in diabetes patients with and without comorbidities.

Result: Of the total, 23.5 % participants with diabetes showed extreme functional disability. Odds of functional disability increased with age (OR= 10.75, 95% CI= 4.39-26.33, p-value <0.001). Females were twice more likely to have functional disability burden (OR= 1.90 95% CI= 1.06-3.42, p-value 0.029) as compared to males. Odds of functional disability by disease category were as follows: no comorbid condition as reference, the odds of functional disability was (OR= 2.03, 95% CI= 1.15-3.60, p-value

0.014) for diabetes with one comorbid and (OR= 10.98, 95% CI= 6.49-18.58, p-value <0.001) for diabetes with two or more comorbid conditions.
Conclusion: One of the most upsetting features of fast increase is the co-occurrence of diabetes and multimorbidity is the rising burden of functional disability, particularly in women and older adults. There is a greater need for diabetes related functional disability surveillance and research directed at environment and improving lifestyle factors.
Key words: Diabetes, functional disability, multimorbidity, Pakistan

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LIFE EXPECTANCY IN WOMEN WITH GESTATIONAL DIABETES

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Abstract
Gestational Diabetes (GD) mostly occurs in the third trimester of gestational period. GD is defined as low insulin secretions produced from pituitary gland, due to which sugar levels increases to the alarming extent and leads towards non communicable disease i.e. Gestational Diabetes. It's the need of era to control this to protect the mother from Diabetes Mellitus and infant from ailments like intra uterine growth restrictions, anti-phospholipid syndrome, and small from gestational age, low birth weight infant many others. To protect the both, mother and child it's time to adopt certain strategies. The foremost is to aware the mother about the importance of complex carbohydrates. Complex carbohydrates have the ability to control the gestational diabetes in a normal range. To control the GD focus on the intake of low glycemic index foods like oatmeal, sweet potato, beans etc. In addition to the carbs, mothers should be physical active and totally prohibit the sedentary lifestyle at least in the 42 weeks of pregnancy. Mothers should take Docosahexaenoic acid (DHA) and Eicosapentaenoic acid (EPA) in recommended amount from the fish to control the diabetes. It has ability to stimulate the insulin secretions and avoid diabetes even after the delivery. In addition to diet and physical activity, it is mandatory for mother that she must be stress free and just focus on the optimistic thoughts. To avoid the further progression of disease, mothers should be council on the importance of breastfeeding. Encourage mother to promote breastfeeding because this is the responsibility not a choice.
Key words: Gestational Diabetes, Complex carbohydrates, DHA, EPA, Breastfeeding

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REVIEW STUDY ON THE IMPACT OF SOY PROTEIN AT PROTEINURIA AND RENAL FUNCTION IN PATIENTS WITH TYPE 2 DIABETES (NEPHROPATHY IN DIABETES)

ABSTRACT

Changes in dietary protein consumption take a significant role in curative action and the managing

renal illness in various forms. Utilizing soy protein rather than animal protein decreases progression of kidney disorder in humans. Kidney work can be reduced by decreasing protein consumption in people with initial diabetic kidney ailment. The perceptions of medical lead to the soy-protein assumption that substitution of animal protein with soy protein results in less glomerular hypertension and hyperfiltration with successive assurance from nephropathy in diabetes. Advantages of soy protein components may prompt: amino acids, isoflavones and specific peptides. Moreover, substitution of animal protein with soy protein must have curative properties in nephropathy in diabetes with subsequent controlling of damaging capacity of renal and reducing proteinuria. Half of the daily consumption of soy protein as dietary protein had an obvious impact on capacity of renal or proteinuria. Further goings-over are compulsory to basically examine the impacts of soy-protein intake on the capacity of renal in diabetic people. Soy-protein intake was related with a distinguished reduction in serum cholesterol and triacylglycerol concentrations. Replacing soy protein for animal protein normally in diabetic subject's reduces hyperfiltration and decreases albumin in urine and its elimination from the body. Constrained information is accessible on effects of isoflavones, other soy components and peptides of soy on capacity of renal in diabetes. Moreover, the studies are mandatory to perceive the advantages of components of soy protein on the function of renal in diabetic subjects.

GESTATIONAL DIABETES AND ITS COMPLICATIONS

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ABSTRACT

Diabetes mellitus is most common non communicable disease in our community. According to WHO the frequency of mortality caused by diabetes are 3% and 7% are by other NCDs. Every food that we eat provides glucose. Insulin plays an important role in the onset of diabetes. Insulin works in the management of diabetes by binding with insulin receptors on cell member that promote the uptake of glucose into the cell, where cell use glucose for energy. There are numerous factors that rise risk of diabetes the most common features are obesity, physical inactivity, use of high glycemic index foods, family history of diabetes, hypertension. Gestational diabetes is the type of diabetes that occur during pregnancy and it eliminate after birth. It can occur at any stage of pregnancy but most rampant in second trimester. Gestational diabetes causes no of complications for offspring and pregnant women. But when it appropriately detected and fine managed the damaging impacts are lessened otherwise, they cause problem in delivery, premature birth, still birth and pre-eclampsia. Gestational diabetes commonly not have any alarming symptoms that detect the women have gestational diabetes but, in some cases, women face hyperglycemia, severe dehydration, dry mouth and drowsiness. Proper management require for safe delivery it occurs by controlling blood glucose level, physical activity like exercise and regular

inspection but majority of women require medications and insulin injections because they can't manage their sugar level by diet. If you are diabetic, you must require preconception diabetes management and proper doctor checkup to prevent from gestational diabetes and its further consequences.

Keywords: Diabetes, Insulin, Pregnancy and Gestational Diabetes

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MEDICAL NUTRITION RECOMMENDATIONS REQUIRED DURING GESTRATION DIABETES MELLITUS

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Gestational diabetes mellitus (GDM) is defining as any degree of glucose intolerance with onset or first recognition during pregnancy. Blood glucose concentrations before and early in pregnancy can minimize the risks to level of the general population. However, diet modification and good metabolic control during GDM and take exercise and folate daily. Approximately 7% of pregnant women, resulting in more than 20,000 cases annually have diabetes. Pregnancy is a diabetogenic condition characterized by insulin resistance with increase in beta cell response and hyperinsulinemia. GDM of any severity increases the risk of fetal macrosomia, neonatal hypoglycemia, jaundice, polycythemia and hypocalcaemia may complicate GDM as well. The spontaneous abortion occurs at the time of conception the later complication may result from fetal growth disorders and / or alterations in obstetric management due to the knowledge that mother has GDM. To control GDM medical nutrition therapy includes not only caloric intake also its carbohydrate. Generally, there is not an increased energy requirement during the first trimesters, and a normal –weight woman will need an additional 300 kcal per day in the second and third trimesters. The composition of the diet should be 40% carbohydrate, 40% fat and 20% protein divided among three meals and three snacks. Maternal overweight and obesity in normal glycemic women is associated with an increased rate of complications. Lifestyle, post-partum stress also contribute in elevate GDM for obese women (BMI >30kg/m^2), a 30-33% calorie restriction to 25 kcal –kg actual weight per day has been shown to reduce hyperglycemia and plasma triglycerides with no increase in ketonuria. Restriction of carbohydrates to 35-40% of caloric has been shown to decrease maternal glucose levels and improve maternal and fetal outcomes. ACOG recommends that pregnant women should perform 30 minutes or more of moderate exercise daily. The American Diabetes Association recommends starting or continuing a program of moderate exercise in women without medical or obstetrical contraindications.

Key Words: Gestational Diabetes, diabeteogenic, ketonuria, post-partum, ACOG, macrosomia, polycythema

III- FUNCTIONAL FOODS

NUTRIFOX PLUS: A CHOCOLATE MILK POWDER FOR WEIGHT LOSS, CARDIOVASCULAR DISEASE, GI PROBLEMS, DIABETES AND CANCER

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Abstract

All around the world about 30 of the population (10% in Pakistan) is obese [1, 2]. Obesity is a state that is associated with having overindulgence of body fat, de_ned by genetic and environmental factors that are hard to control with dieting. There are many factors such as weight gain in adults due to heredity, physical inactivity, the routine of sleep, eating habits, medical issues, and their food preferences. It is proven from many types of research that obesity is a major cause of Non- Communicable Diseases (NCD) leading to severe cardiovascular problems, diabetes and premature death [2]. According to the World Health Organization (WHO), 17.9 million people are dying every year (0.4 million in Pakistan) due to Cardio-Vascular Diseases (CVD) and 422 million people are diabetic around the world (26% in Pakistan) [1, 3]. So, we have made low fat, high _ber and gluten-free chocolate powder for milk, containing all organic ingredients having 15 essential micronutrients, which help with weight loss, diabetes, cardiovascular diseases, Gastro-Intestinal (GI) problems, cancer, and celiac disease. Since nowadays people don't have enough time to follow the traditional methods for weight loss, most of them tend to use weight loss supplements, especially women. Therefore, we made a healthy replacement of it, as non-organic weight loss supplements can cause toxicity in the body and may have side effects. In our product, high levels of _ber help in increasing the satiety decreases the absorption of glucose in the blood and improve gut health. Moreover, the base ingredient of the product helps in reducing the triglycerides level in the blood and _ght against cancer cells. Therefore, this product can improve the current nutritional status of our population as it is palatable, convenient to use, a_ordable and contains all the essential nutrients. Moreover, milk is consumed by people of all ages and socio-economic status around the world, hence, the addition of this powder to the milk can improve the nutritional quality of the diet. Hence this product will help an individual in losing around 1kg/month weight and prevent weight gain along with maintaining glucose of diabetic patients, triglyceride levels of CVD patients and bowel movements of GI patients.

Keywords | Comorbidities; obesity; organic; gluten free; satiety

NUTRIGENOMICS

ABSTRACT

Genes are significant part of human health mystery. Relationship among food and health is well-understood. Nutrigenomics proposes the manner in which we can optimize the health of the humans as well as standards of existence. It's far an appealing attempt, however with vast demanding challenge. Foods contain some bio-chemical act as ligands for transcription-factors, impacting gene expression directly. Obesity among people is becoming very common and is expanding worldwide and has turned into a genuine medical issue. Inflammation of lower grade in obese individuals is considered as one of the interceding forms in the development of diseases related to metabolism, for example, heart diseases & diabetes mellitus. With the purpose of reducing inflammation, some antioxidant compounds from different foods can be combined to control the inflammation contributing to obesity and other chronic conditions. A dietary mix rich in anti-inflammatory components (from different foods) was used in an intervention that affected inflammation, stress related to oxidation and metabolic components in fatty tissues, plasma & urine. The nutrigenomic approach involving protein, gene and metabolic compounds profiling on large scale indicated the anti-inflammatory as well as oxidative stress related impact of diet mix in humans. The dietary mix influenced the markers associated with oxidation. Diet mix reduces the prolactin (formed mainly in the brain) concentrate. Prolactin has been known well as a regulator of metabolism related to regulation of body weight, islet development of pancreases &a lot more. The values of adiponectins and anti-oxidant markers in the plasma increased after intake of the diet mix containing antioxidants in high amounts. It did not affect the concentrate of C-reactive protein, various alteration were spotted in the inflammatory markers that gives considerable evidence of (inflammation) modulation.

NUTRITIONAL COMPOSITION OF ENERGY DRINKS

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Abstract:

Objectives: Consumption of energy drinks has become very common during the last decade, especially amongst youngsters. Despite the fact that manufacturers of energy drinks claim them to be a healthier option, the fact is that they contribute to obesity, which is directly linked with several other non-communicable diseases. The objective of the instant research was to evaluate the nutritional composition of various brands of energy drinks available in local market. For this purpose, five most sought after energy drinks brands were chosen and analyzed with regards to their nutritional contents. The results revealed that per 100 mL serving, the energy drinks contributed 39 ± 10.68 calories. In terms of carbohydrates, a serving of 100 mL of energy drinks provided 12.24 ± 1.61 grams of which 11.96 ± 1.76 were refined sugars. Energy drinks did not contribute to fats, protein or any fiber. Sodium content of energy drinks was 98.40 ± 57.47 mg per serving while Niacin content was 7.90 ± 7.64 mg. Pyridoxine content provided by a serving of energy drinks was found out to be as 1.62 ± 2.04 mg while Cobalamin was 1.00 ± 2.24 mg. The survey revealed that energy drinks provided extremely high amounts of carbohydrates and refined sugars, which is very unhealthy. Also, they provided considerable sodium content per serving which was an additional alarming finding. Awareness should thus be created in the general population to avoid over consumption of energy drinks, as their frequent consumption can lead to several health conditions such as obesity and several non communicable diseases.
Key words: Energy Drinks; Non Communicable Diseases; Carbohydrates; Refined Sugars; Sodium

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CHARACTERIZING AND EVALUATING THE POTENTIAL OF TURMERIC TO ATTENUATE HYPERCHOLESTEROLEMIA THROUGH ANIMAL MODELLING.

Abstract

Hypercholesterolemia is the chief risk aspect for causing coronary heart ailments. Food has significant potential in managing this life threatening condition. Turmeric and its bioactive component, curcumin have therapeutic effect against hypercholesterolemia. In this study turmeric and its extract were evaluated for its hypocholesterolemic effect in high cholesterol induced rats for thirty days. For this purpose, extract of turmeric powder were assessed for total phenolic, total flavonoid and its antioxidant potential via screening tests like DPPH and FRAP assay. At the end of the study turmeric extract(conventional solvent extraction) and turmeric extract (supercritical fluid extraction) administered rats were kept fasted overnight and then they were analyzed for their serum lipid profile including HDL, LDL and triglycerides and total cholesterol and obtained data was subjected to statistical analysis. According to the analysis TPC (743.10 ± 8.19mg GAE/100g), TFC (75.14± 4.12 mg/g), DPPH (65.10±

1.03%) and FRAP (191.61 ± 4.1 uMFe2+/g) showed their maximum values at 90% methanolic extract in conventional solvent extraction and Supercritical Fluid Extraction showed its maximum value at 4000psi regarding pressure factor. HDL(36.733 ± 2.195 mg/dL), LDL (74.825 ± 3.905 mg/dL), TG(74.825 ± 3.905 mg/dL) and TC (218.94 ± 13.345 mg/dL) showed decreased values at thirtieth day of study period as compared to start of study, showing positive effects in supercritical extract fed rats. Showing turmeric extract has beneficial effects in reducing cholesterol values.

ENCAPSULATION OF ASTAXANTHIN EXTRACTS IN EMULSION SYSTEMS: A COMPARATIVE STUDY WITH CONVENTIONAL AND MICROFLUIDIC APPROACHES

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Abstract

Introduction and objectives

Astaxanthin (AXT) belongs to carotenoid family and have a relatively high antioxidant activity due to presence of hydroxyl and ketonic functional groups in its molecular structure. The study was conducted to encapsulate AXT in different food-grade oil-in-water (O/W) emulsions stabilized by different emulsifiers using either conventional or microfluidic emulsion devices.

Materials & Methods

Two different AXT extracts (AstaReal (AR) and Zenthin® (ZR)) based upon concentration and without purification was used as encapsulants in the dispersed phase, while different emulsifiers (1% (w/w) SDS, ML-750, MO-7S, Na-Cs and ML) were used as the continuous phase. Firstly, nanoemulsions were formulated using high-pressure homogenization in four passes at 100 MPa using different emulsifiers and called as tradition emulsification formulation method. While, straight-through microchannel emulsification (MCE) was used as microfluidic emulsification method.

Results & Findings

The volume mean diameter ($d_{4,3}$) of nanoemulsions produced by ML and Na-Cs were 163 ± 8 and 144 ± 1 nm, respectively. The Na-Cs-stabilized nanoemulsions showed good physical and chemical stability (> 70%) after 30 days of storage. The MCE was conducted at a dispersed phase flow rate of 1-mL h^{-1}. Successful emulsification was conducted with a Sauter mean diameter of 35-37 µm and relative span factor < 0.25. The emulsification was highly depended on the type of emulsifiers and the extract type used during emulsification. Better droplet productivity was achieved with AR extract with 1% (w/w) ML-750 as the optimized emulsifier in Milli-Q Water. The O/W emulsion

droplets remained stable at 25 ^{o}C with encapsulation efficiency of over 98% during 30 days of storage period.

Conclusions

These findings provide valuable information in designing new functional foods that are sensitive to various processing conditions.

CHARACTERIZATION OF CHIA SEED FLOUR AND EXPLORING ITS ROLE AS VALUE ADDED PRODUCTS

ABSTRACT

INTRODUCTION: Chia an ancient plant commonly known as *Salvia hispanica* L.exhibit tremendous dietary and health related medicinal properties due to its incredible health benefits and incorporation into a wide range of food products. Chia is the richest source of polyunsaturated fats: omega-3, omega-6, dissolvable dietary fiber as well as proteins and phytochemicals.

MATERIALS AND METHODS: For the purpose, chia seed is converted into fine powder (chia flour) for the formulations of various valuable foods.The chia seed flour was analyzed for its chemical composition. The chemical analysis indicated that chia seed flour is an excellent source of essential nutrients as it contains 37% of polyunsaturated fatty acids that act as an anti-inflammatory, enhance cognitive performance and lowers cholesterol.

RESULT AND DISCUSSION: It is an excellent source of nutrients containing protein 19.84% ± 1.40, fats 37.40 ± 1.41%, and fiber 37.82 ± 1.19%. Moisture and ash content of chia seed flour was 5.86 ± 0.30% and 4.00 ± 0.36% respectively. Owing to its remarkable gelling and binding properties, water holding and oil holding capacity of chia seed flour was 12.06 ± 0.32% and 19.33 ± 0.59%, can be used as appetite suppressant. The water absorption index and solubility index values of chia seed flour was 2.98 ± 0.14 and 9.22 ± 0.74. The objective of this research was to formulate baked chia chips and for this purpose four treatments were designed with varying concentrations of chia seed flour along with control (T_0= chips without chia seed flour, T_1= 4%, T_2= 8%, T_3= 12%, and T_4= 16%). The treatments developed with different levels of chia seed flour was then examined for texture and color. Treatments with high concentration of chia seed flour was dark in color and becomes soggy in texture and difficult to chew. Hardness of chia baked chips for different treatments (T_1= 4%, T_2= 8%, T_3= 12% and T_4= 16%) ranges from 4.47 to 1.60. The suitable texture selected was of T_1 which comprises of 4% chia seed flour in it and its value was 3.77 ± 1.12. 4% chia supplemented chips were selected in terms of color because of light color similar with control chips. For optimal or ideal consumer acceptance, the incorporation of 4% chia seed flour is acceptable or recommended in

terms of both color and texture with improved nutritional profile. Supplemented baked chia chips would be a healthy snack replacer to the unhealthy ones.

THERAPEUTICAL POTENTIAL OF CINNAMON TEA AGAINST GLYCEMIC INDEX AMONG MALES AND FEMALES

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Abstract

Background: Cinnamon has a broad range of historical uses as a medicine and is often used as a flavoring agent in different cultures. Several studies have reported that cinnamon has vasodilative, anti-thrombotic, anti-spastic, anti-ulcerous and anti-allergic actions. Cinnamon has been shown to help lower blood glucose levels in people with diabetes.

Objectives: To check the effect of cinnamon tea on diabetic patients and to evaluate how it lowers the glycemic index by using cinnamon in daily life cooking in diabetic men and women and also to access the knowledge of diabetes and eating habits of diabetic patients.

Methodology: This study examined the effect of cinnamon tea in both men and women (n-30). Blood samples were taken for 10 days to measure blood glucose levels. It was measured during fasting and after 6-hours of taking cinnamon tea. A self-made questionnaire was also developed to access the knowledge of diabetes and eating habits of diabetic patients.

Results: There was a statistical decrease in blood glucose level after consumption of cinnamon tea. The mean decrease in the blood glucose level was 15.95. We also observed the standard deviations that the results in both conditions are similarly dispersed. T-value is significant asa the P-value is less than 0.05. This is reported as $t(299)= 5.34$, $p< 0.001$. Out of 30 patients 16 (53.3%) skip meal, 16 (53.3%) changed their eating habits and 22 (73.3%) were aware about nutrition strategy to control blood sugar level. 10 (33.3%) patients had hypertension, 10 (33.3%) have blood pressure, 16 (53.3%) use insulin and 22 (73.3%) were physically inactive.

POSTPRANDIAL GLUCOSE LOWERING EFFECT OF SEAWEED POLYSACCHRIDES IN OVERWEIGHT ADULT FEMALES

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ABSTRACT

Background: Diabetes and obesity are major health problems leading to death and disability worldwide. Several lifestyle factors including physical activity, meal size, food selection and frequency of meals play a vital role in these diseases. Poor carbohydrate quality and decreased satiation leads to increased food intake and blood glucose levels resulting in obesity and eventually diabetes and its associated co-morbidities. Postprandial glucose levels are most important of whole day glycaemia. Dietary fibers especially the non-soluble polysaccharides are a tool for the prevention and treatment of obesity and diabetes due to their slow release of glucose and low energy and density. Gel forming soluble algal polysaccharides alginate and carrageenan have increasing viscosity and slow releasing ability to nutrients in the gut. These polysaccharides are used to assess the effects of polysaccharides sodium alginate and carrageen on postprandial glycaemia. It is used to evaluate and compare the effects of these polysaccharides weight management and obesity control with diabetes.
Methodology: Blood Glucose were taken by glucometer (On Call Plus) before giving treatment, after 7 days, then after 14 days, then after 21 days and then it taken after 28 days. Appetite, satiety and food acceptance checked through Analogue Visual Scale. In clinical studies, visual analogue scale (VAS) is often used to assess appetite and to record subjective sensations i.e. fullness, nausea and hunger.
Results and Findings: The total subjects were 15 in three groups. The obesity was controlled by carrageenan for 5 subjects and 5 were controlled by alginate and 5 were controlled group. So result was more significant by carrageenan in these subjects.
Conclusion: The present study concluded that alginate and carrageenan can be used as supplement to control the appetite, food intake and postprandial glucose levels without causing any problems to the gastrointestinal system of overweight females.

AJWA DATE

ABSTRACT
Aroosa Arshad, Hajra Bibi

Date is the most profitable crop. There are many types of dates but Ajwa Date is the one with exceptional health benefits. Ajwa Date is distinguished from other date varieties because of its supreme nutritional properties. Date seed pit is rich in antioxidants and dietary fiber and is discarded as waste. This study focuses on developing different types of food products by incorporating Ajwa Date seed powder as a functional ingredient. Purposely, including coffee, white sauce pasta, cupcake and pan cake were developed by incorporating Ajwa Date seed powder in it. Furthermore all the products were then modified and standardized under the guidance of the expert panel of Food Science and Human Nutrition Department, Kinnaird College for Women Lahore. Products made with Ajwa Date seed powder were more acceptable by consumers and expert panelists as there mean score of overall acceptability for coffee made with Ajwa date seed powder was given 9.0 whereas mean score of 7.33 was given to the coffee made without Ajwa date seed powder in the same way mean score of overall acceptability for white sauce pasta made with Ajwa date seed powder was given 9.0 whereas mean score of 7.5 was given to the white sauce pasta made without Ajwa date seed powder. The mean score of overall acceptability for pancake made with Ajwa date seed powder was given 8.67 whereas mean score of 7.83 was given to the pancake made without Ajwa date seed powder and the mean score of overall acceptability for cupcake made with Ajwa date seed powder was given 8.83 whereas mean score of 7.83 was given to the cupcake made without Ajwa date seed powder which indicates that the products made with Ajwa date seed powder was more acceptable by the sensory panelists thus these innovative products can be successfully used by its consumers.

EXPLORING THE ANTI DIABETIC EFFECT OF *SYZYGIUM CUMINI* SEEDS (SCS) BASED CHAPATTI IN HUMAN SUBJECTS

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Abstract
After the progress in the field of nutrition and science, rationalists and doctors gave a profound enthusiasm to individual's wellbeing and health status of whole population with regard to their daily eating habits. Diabetes mellitus remains a highly prevalent non communicable disease and chronic metabolic disorder which has an alarming situation worldwide. Hyperglycemia is prevalent in our society and currently many therapies are used for its treatment. In the current study *Syzygium cumini* seeds (SCS) were used to regulate blood sugar in patients suffering from diabetes. SCS powder was blended with wheat flour to manage hyperglycemia. For this purpose, blended wheat flour and SCS powder were used to prepare chappati at different treatment levels which were subjected to physicochemical analysis. Moreover, various treatments of SCS supplemented chapattis were characterized for sensory evaluation and best formulation were used for efficacy study. Experimental diet was provided twice a day to randomly selected individuals. After 21 days of study trial, biochemical analysis of blood glucose level was done. The mean values at day 1 (206.1667±13.01), Day 7 (197.16±14.19), Day 14(192±10.41) and day 21(185.41±12.08). The insulin level was taken at Day 19.17±0.79 while at Day 21 when was significantly decreased (9.20±1.33). Hence, SCS proved to have anti diabetic potential.
Keywords: Hyperglycemia, syzygium cumini seeds powder, wheat flour chappatti

ILLUMINATING THE MEDICINAL POWER OF ELETTARIA CARDAMOMUM (CARDAMOM) AGAINST HYPERLIPIDEMIA

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Background:
Cardamom (Elettaria cardamomum) resides to family zingiberaecae, is a sweet spice and widely used as medicinal flavoring agent. It possess antioxidant as well as anti-inflammatory qualities for indigestion and appetite stimulant. Spices like cardamom have recently been used as part of therapeutic medicine. Various clinical trials have showed the efficiency of cardamom in reducing risk of chronic disease resulting from obesity.
Methods:
A research study was designed to determine the efficiency of cardamom in reducing LDL level in obese population. A sample of 20 hyperlipidemic and overweight individuals were selected. The subjects were divided in 2 groups; Cardamom group (n=10, 10g/day) and placebo group (n=10,0g/day). Lipid profile was analyzed at baseline and after the intervention.
Results:
Cardamom contain potent anti-oxidant properties due to which it has curative importance. Clinical findings of this study showed significant reduction in LDL and elevation in HDL, so cardamom is beneficial for hyperlipidemic individuals.
Conclusion:
Cardamom had significantly beneficial effect on the lipid profile in obese patients. So, population should include cardamom in their diet to reduce the risk of chronic diseases resulting from obesity.
Key words: Cardamom, Chronic diseases, Antioxidant

APPRAISING THE CORRELATION OF CURRY (*MURRAYA KOENIGII)* LEAVES WITH DIABETES THROUGH RAT MODELING

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Murraya koenigii is known for arresting the progression of one of the most prevalent disease, which is exemplified as diabetes mellitus. Curry leaves are rich with many vitamins and flavanols. The most imperative and abundant flavanol present in their leaves is Quercetin. The aim of this current study was to check the effect of *Murraya koenigii* leaves on diabetes mellitus in rat models along with the affect on biochemistry of the rats. For efficacy study, diabetes was induced in rats to raise their blood sugar level. Diabetes induced rats fed on functional diet in three groups (T_1+T_2+T_3) with one being control group (T_0) for specific interval of time. Along with glucose level, these treatments have incredibly positive rule in controlling the insulin level. In *vivo* study was also done on animal model (rats) to further check the efficiency of *Murraya koenigii.* It was done for the specific time interval of two months by feeding the rats with a diet rich in *Murraya koenigii* powder. Glucose level of rats was checked frequently for the confirmation of the rats being hyperglycemic. After the trail of two months, rats serum was obtained to check glucose along with other parameters like insulin, HDL, LDL, TAG, TC, LFT's, RBC's, WBC's and Hb. The glucose level was reduced from 202.67 mg/dL to 156 mg/dL and 208 mg/dL to 152.67 mg/dL in T_2 and T_3 treatments respectively. At the last step of the study, all the data were exposed for statistical analysis to check significance of treatments. *Murraya koenigii* powder showed a highly significant effect on most of the parameters like glucose level, low insulin ranges, lipid profile and liver functioning tests. The current examination reveals *Murraya koenigii* hold the capability to exterminate diabetes mellitus. Consequently, recommendation has done to add *Murraya koenigii* powder as a replacement to medicines and add *Murraya koenigii* in nutritional treatments as a functional food.
Key words: *Murraya koenigii,* diabetes, rat modeling, Curry leaves

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BETA ALANINE SUPLLEMNTATIN EFFECTS ON EXERCISE PERFORMANCE LEVELS

Rubab Sikander

ABSTRACT

Beta-alanine, in real words, boosts exercise performance and lowering the muscles fatigue. Role of beta-alanine that is considered as a substrate of Carnosine that plays a significant role in PH buffering of the body during high physical performance and exercise. Beta-alanine becoming popular in athletes to support the performance. Utilizing the beta alanine amino acid rather than any other will decreases the signs of fatigue and lower body workout capacity. Reducing the beta alanine consumption in the diet leads to lower exercise performance and abilities of workout. From last few

years, beta alanine is found as the best dietary supplement that enhances the body abilities as well as working capabilities. Supplementation of β-alanine expands the muscles Carnosine content as well as total body buffer capacity with the perspective to induce physical power during high exercise performance. It is amino acids that effects on chemicals and that further chemical work on body performance and used to make the other chemicals in the body Beta-alanine supplementation has proved as delay the neurotransmitter fatigue, reduces the signs and symptoms of laziness and expanding the skeletal Carnosine level, lean muscles mass and lowering the exhaustion on divertissement active man.

REVERSING NEURODEGENERATIVE CHANGES IN BRAIN WITH POWER OF NUTRACEUTICAL FOODS

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Abstract

Background: Brain degenerative changes involve several mechanisms but oxidative stress and wrong selection of food are considered as most influential among others. These effects results into abnormal neuronal cell functioning and signaling, leading to neuron death. Different foods contain antioxidants that can clear this oxidative stress and prevent neuron loss and thus helps in reserving brain functions.

Objective: This review aimed for finding the extent of nutraceutical foods in reversing of neurodegenerative changes in the brain. Moreover this study will also find the specific anti oxidants which can clean the neuron from plaque formation and prevent their functionality.

Methodology: Several studies from electronic media were searched and review thoroughly to find any clue and connection between some antioxidants and nutraceutical plants which have the miracle power to mop up free radicals and reversing the side effects. The data searched from the year 2015 onward to find latest outcomes.

Results: There are number of studies which are in favor of nutraceutical food in preventing of degenerative problems and enhancing brain power and reducing memory loss issues. The meta analysis studies showed positive relation of taking omega 3 fatty acids with vitamin E from Dietary sources have enviable power to prevent, enhance and increase the brain volume, these are also related to slow down the progress of memory decline and in case of disease they were found to reverse the effects. Salmon, tuna, almonds and olive oil as source of good fats can help in treatment of verse forms of degenerative memory issues like Alzheimer's disease. The

MIND diet got great importance in this reversal. Studies also find a negative relation of taking saturate fat may result in shrinkage of brain tissues.

Conclusion: Eating clean and nutritious food will not only help us maintaining good health along with lowering the risks of diseases but also reversing them.

Key words: Memory loss, brain tissue shrinkage, anti-oxidants, neuron health

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BLACK CUMIN SEEDS AND THEIR HEALTH FRIENDLY PROPERTIES: A REVIEW

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Black cumin seeds which have been traditionally used as spices and condiments in various dishes were considered to be a remedy to heal many usual conditions such as respiratory disorders, nausea, headache and many more. But with the passage of time in vitro studies indicated the beneficial role of black cumin seeds (Nigella sativa) in the prevention and treatment of various chronic life threatening conditions. Studies has assured that this miracle seed oil has the tendency to fight with reactive oxygen specie(ROs) which is the main cause of several inflammation associated diseases such as memory loss, diabetes, hypertension, cancer etc. thus act as a scavenger for ROs. These oxidation fighting properties of black cumin led to many studies. All these studies assured the miracle potentials of these seeds and their oil. Depending upon the dosage Nigella sativa and its active ingredient thymoquinine has the tendency to affect the immune system of a person and helps fight the disease due to their anti-oxidant properties. One of the many in vitro studies performed on Nigella sativa and cancer showed that this essential oil has the tendency to inhibit and delay the papilloma expression in rats thus suggesting a positive association between this oil and cancer. Further studies has assured the anti –oxidative, anti-inflammatory, anti-pyretic as well as analgesic properties of Nigella Sativa in many conditions such as diabetes, asthma, atherosclerosis, CVD, hypertension, GIT disorders, cancer, mental health and many other disorders. This review article focuses on the functional properties of Nigella sativa in many diseases hence, increasing the use of this miracle herb and reducing the onset as well as severity of many diseases.

BIOFORTIFICATION: APPROACH TO TACKLE MICRONUTRIENT MALNUTRITION

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According to an estimate approximately more than half of the world's population is affected with micronutrient malnutrition which is considered among the most serious global challenges to humankind. Women and children under the age of five years are among the most vulnerable groups affected with micronutrient malnutrition, especially Zn and Fe owing to low dietary intakes. New modern plant breeding technologies has been historically slanted towards achieving high agronomic yields rather than focused on nutritional quality of the crop. While to alleviate or combat malnutrition efforts has been made primarily in context to food fortification or pharmaceutical supplementation. Biofortification is the process of breeding nutrients into food crops, provides a comparatively cost-effective, sustainable, and long-term means of delivering more micronutrients. It is intended to increase the bioavailable concentrations of essential elements in edible portions of crop plants through agronomic intervention or genetic selection. This approach might be a solution to malnutrition or hidden hunger mitigation. The biofortification strategy seeks to put the micronutrient-dense trait in those varieties that already have preferred agronomic and consumption traits, such as high yield and disease resistance. Thus there is a dire need to investigate the process and genetic potential to increase bioavailable micronutrients in staple food crops such as rice, wheat, maize, common beans, and cassava. These crops are majorly consumed by a large proportion of the society and thus play an important role in targeting a large group of population and may help to mitigate micronutrient malnutrition.

Keywords: micronutrient malnutrition, fortification, supplementation, biofortification, genetic potential.

BASIL *(OCIMUM BASILICUM):* A QUEEN OF HERBS

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ABSTRACT

The predominant cause of global morbidity and mortality is lifestyle-related chronic diseases, many of which can be addressed through Ayurveda with its focus on healthy lifestyle practices and regular consumption of adaptogenic herbs. Among all the herbs used within Ayurveda, Basil (*Ocimum basilicum*) is well-known; an aromatic herb belongs to the family Lamiaceae, its common name is Tulsi and found in tropical Asia, Africa, Central America and South America. It is pungent and bitter in taste and hot, light and dry in effect. The basil plant has good fragrance because of different essential oils in it; the strong clove scent of basil is due to eugenol. The citrus scent of lemon basil and lime basil reflects their higher portion of citral. Basil has a variety of pharmacological activities such as antibacterial, antiviral, antifungal, antimalarial, antidiarrhoeal, antiinflammatory, antiallergic, antihypertensive, cardioprotective, central nervous system (CNS) depressant, memory enhancer, anti-hypercholesterolaemic, hepatoprotective, antidiabetic, antithyroidic, antioxidant, anticancer, antiulcer, antiarthritic, antistress and anticoagulant activities. The roots, leaves and seeds of Basil possess several medicinal properties i.e. basil (*Ocimum basilicum*) aqueous extract revealed hypoglycemic activity, decoction of the root of basil is given as a diaphoretic in malarial fevers. The leaves of basil have also been marketed to have well anti stress and antioxidant potentials and seeds of basil are reported to be very significant in curing piles. The extract of Basil leaves has anticancer potential and the leaves are expectorant in bronchitis, cough, cold and fever. It has been used as laxative, stimulant and anti-inflammatory, cardio-tonic & blood purifier in hepatic disorders. So, the basil is now considered as a valuable source of unique natural products for development of nutraceutical against various diseases.

Keywords: *Ocimum basilicum,* Basil leaves, Tulsi, Pharmacological Activity, Nutraceuticals.

BIO-FORTIFICATION OF CROPS WITH ESSENTIAL MICRONUTRIENTS: NEED OF HOUR

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ABSTRACT
Bio-fortification is considered as an important intervention that can make significant impact on the burden of micronutrient deficiencies in a highly cost-effective manner. Micronutrient malnutrition, the so-called hidden hunger, affects more than one-half of the world's population, especially women and preschool children in developing countries. This alarming situation strongly needs food-based interventions to control micronutrient deficiencies through food fortification. Balance diet, which contains all macro and micronutrients in appropriate amount, and healthy lifestyle prevent the risk of chronic illnesses and promotes health. Bio-fortification of foods (wheat flour, rice grain, maize and oils), that promotes micronutrient (iron, beta-carotene, zinc, calcium, ascorbic acid, S-containing amino acids) bioavailability or decreasing anti-nutrient substances (phytates, poly-phenolics etc.), is the key solution to improve the nutritional status of poor population in both rural and urban areas. Three major approaches (transgenic, conventional and agronomic) are used for the bio-fortification of essential micronutrients into crop plants, involving the use of biotechnology, crop breeding, and fertilization strategies. Bio-fortification is different from conventional fortification in a way that it increases food micronutrient level during plant growth, especially in the edible portion of the crop plants, rather than through manual means during processing of crops. Therefore, it may present a way to reach populations where supplementation and conventional fortification activities may be difficult to implement. Bio-fortified crop plants can provide enough calories to meet the energy needs along with providing all the essential nutrients needed for sound health. However, there are some limitations of advanced bio-fortification methods like differences in mineral mobility, mineral accumulation in plant species, varying soil composition, and genetic variability for the micronutrients in the plant gene pool and low acceptance among masses. To overcome this situation, collaboration between plant breeders, nutrition scientists, genetic engineers, and molecular biologists is essential.
Keywords: Bio-fortification, micronutrient malnutrition, supplementation, biotechnology and crop breeding

DESIGNER EGGS IS NOVEL TECHNIQUE TO ATTENUATE HEALTH DISORDERS

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Designer foods, also known as fortified foods, tailor foods or functional foods, are similar to normal foods in appearance and texture but these are enriched with complement nutrients or nutrients already present in them naturally. Now a days, designer eggs, designer grains, probiotics, designer milk, designer crops or foods enriched with micronutrients and designer proteins are available in market. Eggs are popular among individuals of almost all age groups due to convenient, inexpensive and providing low calorie with high quality protein. So, designer eggs can be beneficial for eradicating the micronutrient deficiency targeting each individuals. In designer eggs, level of omega-3, omega-6 (polyunsaturated fatty acids), selenium, vitamin E and lipid soluble carotenoids (lutein, zeaxanthin, lycopene and β-cryptoxanthin) are increased by modifying hen's feed, using DNA recombinant technology and fermenting procedures. Feeding the bio-fortified crops, tangerine fortified, citrus peel, flaxseed and potato peel can change antioxidant level and polyunsaturated fatty acids making it more valuable for consumer. These bio-fortified eggs can be helpful in prevention and treatment of various health disorders like neurodegenerative diseases, age related macular degeneration, blindness, cataracts, cardio-metabolic diseases, cancer and diabetes. Therefore, there is a need to promote the production of good quality designer eggs by collaborating the researchers and poultry industries working on bio-fortification to get maximum benefits from this novel technique.

Key Words: Designer foods, Bio-fortified eggs, feed modification, Health disorders

FUNCTIONAL FOODS AN EMERGING TREND: FOOD AND NON-FOOD SOURCES OF NEUTRACEUTICALS

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Abstract
Functional foods is the emerging approach to reduce the deficiencies in human body. Functional food are those food that contain biologically active component in it play important role for mental and physical wellbeing of human. It helps to reduce risk of disease. Non communicable diseases, including cardiovascular disease, cancer, chronic respiratory disease and diabetes are the leading cause of sickness and death for women and men, accounting for 35 million deaths or 60% of all deaths worldwide. The concept of "Functional food" developed in Japan. A term is used "Nutraceuticals" means nutrition combined with pharmaceutical. By different ways, nutraceuticals can be added in our daily diet such as application of nutraceuticals in salad dressings, soft drinks, cereals and fermented food products. Different plant based diets such as almonds contain phytosterols helps to stabilize the glucose level in body, pistachios help to lower the cholesterol level, walnuts play important to prevent cancer and to improve brain health. Beans helps to lower the risk of cognitive deficits. Conjugated linoleic acid (CLA), which is the main part of the human diet, mostly found dairy and beef foods. It is made by bacteria that is found in the rumen of the cow. Different type of amino acids and their derivatives have been produced by bacteria that are grown in different fermentation systems. The recombinant-genetic techniques is a new approach for obtaining neutraceutical compounds. The production of eicosapentaenoic acid (EPA) compound by bacteria. This fatty acid is produced by some algae and bacteria. The EPA derived from salmon are produced by algae and are later incorporated in the salmon that consume the algae. EPA can now be produced by non-EPA producing bacteria by importing the DNA through recombinant methods. Functional foods is different and new approach to reduce the deficiencies and prevent the diseases in human beings.
Keywords: Functional foods, non-food sources, neutraceuticals, non- communicable diseases

CONVENTIONAL AND ADVANCE USES OF ONION BULB (*ALLIUM CEPA* L.): A SYSTEMATIC REVIEW

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Abstract
Onion, (*Allium cepa* L.), is one of the most usable and grown vegetable crops in the world. Onion bulb, with its characteristics flavor, is one of the third most essential horticultural herb with a considerable mareket value. Apart from its culinary prperties, *A. cepa* is also used traditionally for its medicinal virtues in a plethora of indigenous cultures. Several publications have been produced in an endeavor to validate such traditional claims. Nonetheless, there is still a dearth of up-to-date, detailed compilation, and critical analysis of the traditional and ethnopharmacological propensities of *A. cepa*.

Objective The present review, therefore, aims to systematically review published literature on the traditional uses, pharmacological properties, and phytochemical composition of *A. cepa.*

*A.*cepa consist panoply of bioactive compounds and numerous pharmacological properties, including antimicrobial, antioxidant, analgesic, anti-inflammatory, anti-diabetic, hypolipidemic, anti-hypertensive, and immunoprotective effects. Although a large number of *in vitro* and *in vivo* studies have been conducted, several limitations and research gaps have been identified which need to be addressed in future studies.
Keywords: Allium cepa; onion bulb, medicinal, traditional, pharmacological, ethno pharmacology

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THE EFFECTS OF POMEGRANATE JUICE CONSUMPTION ON BLOOD PRESSURE AND CARDIOVASCULAR HEALTH

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Hypertension (HTN) is the most common disease found in patients in primary care Guidelines. The seventh report of the joint national committee on prevention, detection, evaluation, and treatment of high blood pressure. . It eventually requires

medication if lifestyle modifications are not initiated or do not control the blood pressure well enough. The majority of patients would prefer not to have to be medicated to manage their disease, and HTN can be found to be a comorbidity along with diabetes, CAD, and many other cardiovascular diseases. Adverse effects, forgetfulness and patient ignorance are multiple reasons for the hesitancy to begin drug management. Pomegranate juice is rich in tannins, possesses anti-atherosclerotic properties, has anti-aging effects, and potent anti-oxidative characteristics. As some antioxidants have been shown to reduce blood pressure, the purpose of this review was to discover the effect of pomegranate juice consumption on blood pressure and cardiovascular health. Pomegranate juice consumption may reduce systolic blood pressure, inhibits serum ACE activity, and is convincingly a heart-healthy fruit. Pomegranate juice consumption inhibits serum angiotensin converting enzyme activity and reduces systolic blood pressure. More clinical research is needed as a number of the studies discussed include small sample sizes and few studies seem to have been undertaken in the recent 5–10 years.
Keywords: Hypertension, CVD, food-safety, genetically-modified, Health protection

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CAMEL MILK DERIVED WHEY POWDER IS EFFECTIVE AGAINST VARIOUS BIOMARKERS IN STREPTOZOTOCIN INDUCED DIABETIC RATS

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Abstract:

Background: Camel milk whey contains serum albumin, α-lactalbumin, immunoglobulin, lactophorin and peptidoglycan recognition protein. Its consumption is effective in management of diabetes.

Objective: To evaluate the effect of camel milk whey powder on various biomarkers in diabetic rats.

Methodology: Seventy-eight male Sprague Dawley rats, aged 8 weeks were taken. Rats were divided into six groups. Diabetes was induced injecting streptozotocin (40mg/kg b.wt. x2) in G2 to G6 i.e. G1, normal; G2, Normal with diabetes; G3, long acting insulin subcutaneous 5 IU; G4, heat treated camel milk whey powder; G5, freeze dried camel milk whey powder (100 mg/kg of b.wt.); and G6 camel milk powder (1g/rat/day). Blood samples were taken at 0, 20 and 40 days of study period and evaluated for tests.

Results: Whey powder significantly improves serum glucose, insulin, liver enzymes, total bilirubin, urea, creatinine, globulin and body weight & lowers LDL, cholesterol and triglycerides. Camel milk powder significantly improves HDL, serum albumin & total protein in comparison to control. However, no significant difference was seen in feed & water intake. Camel milk powder shows significantly increase in relative liver, kidney and small intestine weight.

Conclusion: Whey powder has positive impact on serum glucose, insulin, lipid profile and liver enzymes resulting in diabetes management.

Keywords: Camel milk; whey powder; diabetes; insulin

IV- PUBLIC HEALTH

ASSESSMENT OF INTAKE OF ANIMAL SOURCE FOOD IN SCHOOL GOING CHILDREN

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Background: Malnutrition is a condition in which body does not get enough nutrients to function properly and is a major public health problem. According to National Nutrition Survey 2018 prevalence of stunting (40.2%), wasting (17.7%) and underweight is (28.9%). Because childhood is the rapid growth period of life, animal source food is of prime importance (i.e., meat and dairy) as they are the main source of protein and calcium which are important for the physical growth of children.
Methods: The population of this study includes 8-15 years of school going children. A semi-structured questionnaire was developed consisted questions regarding eating patterns of children and their anthropometric measurements (weight and height). Prior permission was taken from the school principal and parents of children. Sample size was 385. Data was compiled and analyzed by using SPSS versionn20.0 and Microsoft Excel 2013.
Results: The data of385 children were available for analysis. 39.5% were males while 65.5% females in the study. Results showed that 39.8% children were underweight, 43.6% were normal, 12.2% were overweight and 4.4% were obese. Trend of skipping meal is increasing in children as above 60% of children skip major meals in a day. There is low intake of meat and meat products as only 22.8% of children consume egg and 13.9% consume chicken on daily basis, 24% never consume beef and mutton and 41.4% never consume fish. Milk consumption is about 50:50 and 24.9% of them consume milkshake on daily basis.
Conclusions: It is concluded from our study that trend of skipping meal is increasing in school going children and overall daily intake of animal source food is very low which all together ultimately leads to nutritional deficiencies and poor growth & development both physically and mentally.

DIETARY AND LIFESTYLE HABITS AND THEIR ASSOCIATION WITH NUTRITIONAL STATUS OF ADOLESCENT GIRLS IN PAKISTAN

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Background: Non-Communicable Diseases (NCDs) are a growing cause of concern globally. Several NCDs can be prevented, if healthy lifestyle and dietary habits are adopted earlier in life. The aim of this study was, therefore, to find out the dietary and lifestyle habits and their association with nutritional status of adolescent girls in Pakistan.

Methodology: This cross sectional analytical study selected 470 unmarried adolescent girls between the ages of 12 – 19 years through purposive sampling. Dietary and socio-demographic data was collected using a validated FFQ based interview guide. Weight and height were recorded to calculate BMI.

Results: Most of the adolescent girls (56.8%) had poor nutritional status and were consuming less than recommended servings of fruits, milk, vegetables and meat. Only 36% reported consuming fruits daily and barely 9% adolescent girls consumed recommended servings of milk. Breakfast was frequently being skipped. Snacking and cola drinks consumption was common. Adolescent girls did not keep themselves enough hydrated and only 10.4% met recommended water intake. Chicken was preferred over other meats by 79.6% girls. Fish was mostly being consumed in winters only. Early adolescent girls (78.2%) were more physically active than middle (53.7%) and late adolescents (44.8%). Health status, education level and age were significantly associated ($p < o.o5$) with BMI. Although Physical Activity (PA) was not significantly associated with BMI, its association with age was significant ($p< 0.05$) as early adolescent girls (78.2%) were found to be more physically active than middle (61%) and late (63%) adolescents.

Conclusion: Adolescent girls mostly have unhealthy lifestyle and dietary habits; which is likely to affect their health in future. Health and nutrition programs focusing on development of healthy eating habits and inclusion of physical activity in daily routine should be promoted to overcome possible health challenges later in life.

Keywords: Adolescent girls, dietary habits, physical activity, Non-Communicable Diseases, nutritional status

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COMPARISON OF SCHOOL GOING CHILDREN DIETARY PRACTICES WITH MY PYRAMID GUIDELINES

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Background: The word malnutrition covers two groups one is undernutrition which includes underweight, wasting, stunting, followed by micronutrient deficits or insufficiencies and the other is overnutrition which includes overweight and obesity. In Pakistan a total of 1.4 million children suffering from malnutrition, whereas 31% are underweight, 42% are stunted and 17.7% are suffering from severe wasting. The nutritional status of population is not satisfactory and improper diet is affecting people at all ages especially children. This study will help to assess the nutritional status of school going children with respect to their eating habits.

Objective: To evaluate the dietary practices of school going children based on my pyramid guidelines in Pakistan

Methodology: The population of this study involved school going children aged 8-14 years. The sample size was 200 children. The study was conducted in various private and public sector schools of Lahore city. Questionnaire involved questions about demographic features, anthropometric measurements, games usually played by students, 24 hour dietary recall and food frequency table including of food items from all food groups and their consumption by students about 40 food items was added in food frequency table. For the measurement of weight of school going children weight machine and for wrist circumference and height inches tape was used.

Results: This study included 51% males and 49% female students with mean age of 11 years. Results showed that from bread and cereal food group, 44% children consumed white-bread and 66% consumed local bread (roti) on daily basis while 61% children never consumed porridge. 30% children consumed egg and 12.5% consumed chicken on daily basis, 35% children never consumed red meat, 42.5% never consumed fish and 36% never consumed dry fruits. 66% children consumed milk daily. 25% children never consumed green leafy vegetables, 28. % never consumed raw vegetables (salads) and 40% consumed fresh fruits daily. Consumption of confectionery was 38.0% on daily basis. Daily consumption of fizzy drinks was 33% while milkshake consumption was only 24%. Average total estimated caloric intake showed that only 22% children were consuming 2000 calories, 62% were consuming 1500 calories and 15% children were consuming less than 1000 calories per day.

Conclusion: It is concluded that the dietary practices of school going children of age 8-14 years are variable and unhealthy eating pattern is very common. Large number of students doesn't consume any vegetables and fruits according to the recommendations leading to micronutrient deficiencies and many other nutritional consequences. It has been found that some children in our study skip their lunch. The study showed that large number of them are not eat vegetables and fruits according to the recommendations which leads to the hidden hunger and many other nutritional consequences. The consumption of meat and meat products is very low which leads to anemia and cognitive behaviors disorders.

A STUDY ON THE NUTRITIONAL STATUS OF RURAL SCHOOL GOING CHILDREN IN FOUR DISTRICTS OF PUNJAB, PAKISTAN

Abstract

Childhood is the time when maximum growth in relations to size, intellectual, emotional and psychological improvement takes place. Nutrition is an important factor for health and wellbeing. The current study objective was to evaluate the nutritional status of school going children i.e., prevalence of underweight, stunting, and thinness across four districts of Punjab (Okara, Bhawalnagar, Layyah and Rajanpur). This cross-sectional study was carried out from April to August 2016 on 400 school going children (49 female and 351 male) of ages between 9 and16 years. Age, height, and weight had been taken in years, centimeter and kilogram respectively. According to the results, 22.25%, 26%, and 18% children were found to be underweight, slimness (thinness) and stunting in population (Okara, Bhawalnagar, Layyah, and Rajanpur districts). Moreover, 20.70% male children was found underweight, 28.49% stunted, and 13.60% was thin. Regarding the female participants 32.60% were underweight, 8.10% stunted, and 50% thinness, indicating female children has more prevalence of underweight and thinness than male children but the prevalence of stunting is more in male participants than female. These malnourished children are at increased risk to develop non-communicable diseases due to both macronutrients and micronutrients deficiencies. These results will be useful for policy makers while developing nutritional intervention programs.

Keywords: Non-communicable diseases, BMI; age; stunting; prevalence of thinness; underweight; rural areas of Pakistan

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ASSOCIATION BETWEEN FAST FOOD CONSUMPTION AND MENTAL HEALTH AND ITS RELATION TO NCDS

Introduction: Fast food intake is associated with a diet incorporating high sodium, high cholesterol, refined sugar, processed carbohydrates, fats and high caloric value and is one of the causes of mental health conditions like depression. Moreover, it is noted that ncds coexist with mental illnesses. Mental health affect one in four people worldwide, more than 10% of Pakistan's population that accounts for 20 million citizens suffering from some form of mental health condition. Depression prevalence estimates in Pakistan range from 22%-60% whereas according to a survey conducted by ICMA Pakistan, 37% Pakistan's population dine out once a week and 45% Pakistan's population dine out once a month.

Objective: To assess the prevalence of fast food consumption and its association with mental health conditions like depression in relation to NCDs.

Method: A systematic literature research was conducted of the past 5 years using PubMed, Google scholar and Public Health Nutrition Journal. A range of studies were identified which used various methods to assess the association of fast food consumption on mental health which in turn is associated to ncds.

Conclusion: Negative effect on mental health of fast food consumption was noted. Several cross sectional studies found positive correlation between poor nutritional status and brain health disturbance. Oddly et al. found that deprived mental fitness in adolescents have been associated with frequent dine out. Fast food consumers compared to those people who ate none were 51% more likely to develop depression (Public Health Nutrition Journal). Considering the lack of studies conducted in Pakistan regarding fast food consumption and its effects on mental health, we hypothesized that increased consumption of fast food would develop mental health conditions like depression. It is suggested to conduct large studies in Pakistan to have a better understanding of increased fast food intake association with mental health consequences.

V- CANCERS

INFLUENCE OF PHYTOCHEMICALS ON ONCOTHERAPY: FROM NUTRITION TO NANOMEDICINE

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Abstract

Phytochemicals as dietary constituents are being explored for their cancer preventive properties. Quercetin, curcumin and resveratrol are the major constituent of various dietary products are found in many fruits and vegetables. Quercetin has modulatory effects on cell apoptosis, migration and growth via various signaling pathways. Curcumin (diferuloymethane) is an extract of the rhizome of turmeric, negatively regulates various growth factors, protein kinases, transcription factors, inflammatory cytokines, cell receptors, and other oncogenic proteins. Resveratrol acts in all three stages, that is, initiation, promotion, and progression, which affect the overall process of carcinogenesis. It promotes the cancer cells to undergo apoptosis mediated by Fas/Fas ligand, cyclin-dependent kinases cdk 1 and 2, p53, and cyclins A and B1. Although, these phytochemicals appear to be promising anticancer agents but poor solubility, bioavailability, pharmacokinetics, rapid elimination, short half-life, undesirable degradation/biotransformation and instability are the major problems associated with polyphenols. The rapid gastrointestinal digestion is also a major barrier for its clinical translation. To overcome these disadvantages nanoformulations including nanocapsulation, nano-structured emulsions, biopolymer based nanoparticles and direct conjugation of phytochemical to the biopolymer side chain has been developed for enhanced bioavailability of the bioactive components and results in increased uptake by the epithelial system as well as enhanced delivery to the target site. Nanomedicine as a clinical application to nanotechnology, possess highly specific medical intervention at the nano-scale for screening, diagnosis, and treatment of biological systems. Nanomedicines work synergistically as an adjunct, improving the extent of resection and working noninvasively toward tumor eradication. However, Challenges related to nanoparticle clearance and toxicity need to be overcome with the special emphasis on relationship between toxicity, particle size, pharmacokinetics and surface coating before nanoparticles can be used clinically.

INAPPROPRIATE DIETARY INTAKE ALTERING GUT MICROBIAL COMPOSITION; THE REASON BEHIND COLORECTAL CANCERS

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Abstract

Background
According to WHO, Cancer is a Non-Communicable disease which is the second leading cause of deaths in the world. Multiple forms of cancers affecting the body exist like; Skin cancers, Blood cancers, Breast cancer, Gastro-intestinal cancers, etc. The fourth, most commonly occurring and fatal form of cancer is colorectal cancer (CRC) around the globe. According to different studies on affected individuals, 75% of CRC's have no link to heredity but have high prevalence due to fluctuations in Firmicutes and Bacteroidetes (healthy microbiota) present in the GI-track. These microbiota, also known as the natural flora, present in the human body, play a vital role in determining the health status of individuals. Some of these natural microbiomes are present in the human gut. Diet has a great influence on composition of these microbial colonies. The varying compositions of healthy microbiota, known as dysbiosis causes many disturbances in the body particularly in the gastro-intestinal (GI) track. These microbial changes cause inflammation resulting in conversion of normal cells to cancerous cells. This change in gene expression without change in DNA sequence that occurs due to environment (dysbiosis) is called epigenetics.
Methodology: A thorough review of articles from the year 2015-2019 was performed via authentic search engines of PubMed, Google Scholar, and Research Gate which included critical reading and reasoning. The previously conducted review articles and researches have been used to produce a connection between the variables of human gut microbial composition and prevalence of colorectal cancers.
Finding: Developed countries have more cases of colorectal cancers as compared to developing countries. Processed, simple carbohydrate foods, carcinogens, and alcoholism are major forms that lead to varying microbial activity resulting in colorectal cancers.
Conclusion: Elimination of unhealthy dietary intake, and inclusion of physical activity are two lifestyle modifications that help maintain healthy gut microbiome and reduce the risk factor of CRC.

VI- LUNG HEALTH

FACTORS ASSOCIATED WITH USE OF SMOKED VS. SMOKELESS TOBACCO PRODUCTS IN URBAN AND RURAL COMMUNITIES OF PAKISTAN: FINDINGS OF PURE PAKISTAN STUDY

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Introduction Tobacco use is one of the leading causes of premature disease, disability and death. It is estimated that mortality from tobacco use will rise from 6.4 million in 2015 to 8.3 million in 2030 and 80% of this will be in developing countries. Tobacco is consumed in both smoked and smokeless forms. Smoked tobacco (ST) is associated with heart disease, cerebrovascular disease, chronic obstructive pulmonary disease and cancers of the trachea, bronchus and lung. Smokeless tobacco (SLT) which is considered a safer alternative is also associated with adverse outcomes such as precancerous lesions of the mouth, oral cancers, heart disease and stroke. The misconception that smokeless tobacco is safer has led to rise in its usage and has thus received little attention by policy makers and researchers to curb its impact.

Objectives This study is aimed at understanding the factors associated with consumption of smoked versus smokeless tobacco in the adult population of urban and rural communities of Pakistan.

Methods Smoked tobacco use was assessed for cigarettes, cigars, pipes, beedies, and shisha. The users were categorized as never and current users. Smokeless tobacco use was assessed snuff and paan with tobacco and the users were categorized as never and current users. Frequencies and percentages for tobacco use were reported using a 95% CI. The association of tobacco use as a dependent variable has been assessed using Cox's proportional hazard algorithm. Multivariable analysis was done and adjusted prevalence ratios were reported using a 95% CI. A p-value of <0.05 was taken as significant for independent variables.

Results ST use was found to be higher (56.6%) in people above 60 years of age while SLT use was higher (36.1%) in people aged less than 40 years. Use of both types of tobacco was higher in males (ST: 61.2% and SLT: 41.9%), people who were unmarried (ST: 63.5% and SLT: 54.7%), those with no schooling (ST: 59.1% and SLT: 49.6%) and people working in skilled occupations (ST: 72.5% and SLT: 52.7%). Smoked tobacco use was found to be significantly associated with being male (1.83, 95% CI: 1.50-2.24), having no schooling (1.76, 95% CI: 1.29-2.40) and residing in a rural community (2.19, 95% CI: 1.83-2.61). Smokeless tobacco use was found to be significantly associated with being male (1.57, 95% CI: 1.24-1.99), having no schooling (1.74, 95% CI: 1.19-2.6) and residing in a rural community (3.11, 95% CI: 2.5-3.86).

Conclusions Tobacco consumption of both types is associated with male gender, illiteracy and residing in a rural community.

VII- MISCELLANEOUS

FOOD INTAKE AND NUTRITIONAL STATUS ASSESSMENT IN CHRONIC KIDNEY DISEASE PATIENTS: A SINGLE CENTRE STUDY FROM PESHAWAR, PAKISTAN

Bibi Hajira, Sara Khan, Muhammad Samiullah, Sara Riaz

Abstract

Objective: To assess the association between nutritional status and dietary intake of patients with chronic kidney disease (CKD) and also to investigate changes in actual dietary intake in respect to guidelines recommendation for nutrition in chronic kidney disease.

Method: A cross sectional study was conducted at the Department of Nephrology, Institute of Kidney Disease (IKD), Peshawar. A total of 189 CKD patients (18-65 years) were selected using consecutive sampling technique, to collect information on socio-demographic, anthropometric, biochemical measurements, medical history, and dietary intake.

Results: The mean age of the patient was 44.78 ± 10.09 years. Majority (72.2%) of the patients were male. As per Kidney Disease Quality Outcome Initiative (KIDOQI) criteria 3.2%, 16.6%, 46.5% and 31.6% of the patients had stage-I, II, III, IV and V CKD, respectively. The mean mid upper arm circumference (MUAC) and body mass index (BMI) were 21.30 ± 2.06 and 20.46 ± 2.60 (kg/m^2), respectively. As per the national kidney foundation (NKF) criteria 83.4% of patients were malnourished (BMI < 23 kg/m^2). Similarly, 85.2% of male and 51.9% of females had MUAC lower than 23cm. The intake of energy, macronutrients and micronutrients was much lower than the recommended ($p< 0.05$). Malnutrition was more common in stage-IV CKD ($p< 0.05$) and more prevalent in men as compared to females ($p < 0.05$). Significant differences were observed in intake of energy ($p=0.012$), carbohydrate ($p= 0.008$), calcium ($p= 0.000$), phosphorous ($p= 0.024$), riboflavin ($p= 0.051$) and cholesterol ($p= 0.044$) intake among the malnourished and well-nourished. The logistic regression identified decreased intake of fiber ($p= 0.032$), calcium ($p= 0.025$), iron ($p= 0.038$), zinc ($p= 0.031$), vitamin A ($p= 0.051$) and presence of edema ($p= 0.049$) and co-morbidities ($p= 0.052$) as independent predictors of malnutrition in CKD.

Conclusion: Malnutrition is widespread in CKD patient and associated with decreased energy and nutrient intake. The presence of comorbidities and male gender increased the risk malnutrition in CKD.

RENOPROTECTIVE EFFICACY OF GUM ARABIC (*ACACIA SENEGAL)* AGAINST COPPER OXIDE NANOPARTICLES INDUCE NEPHROTOXICITY

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Abstract

Background: Nanotechnology is dynamic enabling field has remarkable application in research and sciences but various effects on human health by the upsurge of nanoparticle-based applications exert hazardous effect and kidneys are prime target of nanoparticles induce toxicity.

Method and Results: Gum arabic, a natural functional food also used as emulsifier in food industry is associated with many medical benefits. One of emerging benefits is nephroprotective efficacy of acacia Senegal. Influence of gum as renoprotective agent was investigated by examining kidney serum biochemical and oxidative stress markers against intragastrically administration of copper oxide nanoparticles (CuONPs) induce nephrotoxicity (300mg/kg/day) in rat model. CuONPs exposure for 7 days significantly causes the nephrotoxicity as examined by increases level of serum creatinine, urea, uric acid and decrease total protein and serum albumin levels. Coadministration with gum arabic (20%w/v oral administration) significantly altered all these biomarkers. In addition oxidative stress markers and histopathalogical variation like glomerulus destruction, blood in parenchyma, and ischemia is significantly altered by gum arabic treatment.

Conclusion: In conclusion, design investigation via rat modeling shows the protective effect of gum arabic in CuONPs induce nephrotoxicity by a mechanism of preserving the antioxidant enzymes of host and improved kidney injury.

IMMUNITY CHARM: MAKING IMMUNIZATION INTO TRADITION

ABSTRACT

PROBLEM STATEMENT

Afghanistan, a country with the worst infant mortality rate in the world, where traditional biases and illiteracy created a lot of challenges in remote areas. Mothers lost their children's vaccination cards that lead to a vaccination rate of only 50%. Doctors within the country had to work without an immunization history. In Pakistan also, according to 2017-18 Pakistan Demographic and health survey (PDHS), vaccination cards were seen

for only 63% of the children age 12-23 months and 48% of the children age 24-35 months. Coverage for vaccination is lower for those living in rural areas than those in urban areas (37% versus 45%) and least coverage in Baluchistan (29%).

OBJECTIVE

To counter Afghanistan traditional biases against immunization, they turned into another tradition in order to maximize vaccination coverage.

METHODOLOGY

A simple thread preloaded with a nazar charm with series of black and colored beads that are messages from doctors to each other and to the people of Afghanistan. Each colored beads is code for a specific vaccine. With every vaccination, doctors add corresponding bead to the bracelets. This is a reminder of the child's immunization history worn by the child. It is a strong Nylon and polyester thread to last entire vaccination cycle. One of the worlds smallest designed clasps, easy for beads to pass over. A child's proof BPA free plastic (cannot be bitten off or broken).

RESULTS

The immunity charm has excited the health care community in Afghanistan and beyond. It turns culture into an incentive and in the long run, bracelets remind mothers for the child's next vaccination. Neighbors and relatives can see the beads on a child's bracelets and everyone compares and asks about the immunity charm. On one side it is in line with traditional beliefs of the community and on the other side, it reminds health care providers which vaccines are implemented.

CONCLUSION

The government is now extending immunity charm to other provinces helping thousands of infants complete their vaccination schedules. The Afghan immunity charm is turning immunization into a tradition. It is one of the most cost-effective and cheap health investment, with proven strategies to prevent diseases in a safest way. Pakistan also shares the same challenges like Afghanistan and this idea would be helpful to fill the gap and it will be a tribute of how science and medicine can work within the parameters of local culture to improve living conditions.

ASSESSMENT OF NUTRITIONAL STATUS THROUGH ANTHROPOMETRIC MEASUREMENTS AMONG SCHOOL GOING CHILDREN

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Background: School going children of age 9-13 years are at verge of nutritional risk if their nutrition intake is compromised, resulting in stunted growth and body weight

reduction affecting their anthropometric measurements. In Pakistan malnutrition is present in 50-60% of the children and is associated with mortality in young children. In 2000, 10.5 million children died each year in India due to malnutrition, and about 2.5 million of these were under 5 years of age. In developing countries, malnutrition is a major cause of death in children less than five years of age. Malnutrition may manifest as a delayed or stunted growth.

Statement of the problem:

Poor dietary intake is one of the major problems and a serious issue of schooling going children now-a-days because of their busy routine, study schedules, lack of time, and ignorance of parents. For convenience, most of the school going children snack on junk or go for unhealthy food choices as their major meals and develop poor dietary habits which results in poor nutrient intake, under-nutrition, under-weight and many other health issues. This present study assessed the nutritional status of school going children through anthropometric measurements and dietary history.

Objectives:

A study was designed to assess the nutritional status of school going children aged 9-13 years through anthropometric measurements and to assess their dietary habits through dietary tools (food frequency questionnaire.

Methodology:

Study design was descriptive cross sectional, conducted in Himmayat-e-Islam School, Lahore. Sample size of the study was 200 children, and the data were collected through convenient sampling. A semi structured questionnaire comprising of 24 hours dietary recall and food frequency questionnaire was designed and used for the collection of data through an interview. Anthropometric measurements like weight, height and Mid Upper Arm Circumference (MUAC) were taken by using weighing machine and measuring tape. Data were analyzed using Statistical Package for Social Sciences (SPSS) version 20.

Results:

The results of study showed that underweight condition is prevalent (66%) among school going children. The study also showed that the major meals: breakfast, lunch and dinner were taken by majority of the students i.e. 95% respectively. Majority of school going children (59.5%) consume milk daily which shows they have good intake of calcium. On the whole, it is concluded that underweight is prevalent in school going children, most of them belong to low-income social group thus their nutrient intake need serious concern.

Key Words: Nutritional status, Anthropometric measurements, MUAC, school, children

HIGH DOSE OF VITAMIN D_3 IN FORTIFIED YOGURT SHOWED BETTER RESULTS IN ACHIEVING OPTIMAL SERUM VITAMIN D LEVELS AND ENHANCED BONE CALCIUM DEPOSITION IN VITAMIN D DEFICIENT RATS.

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Abstract:

Background: Vitamin D is a fat soluble vitamin which can be photosynthesized in skin under sunlight. Sunlight is the substantial source of vitamin D which is affordable by all. Vitamin D deficiency is a crucial public health problem which is prevalent even in sunny areas like Pakistan. Since vitamin D is not present in so many foods so the plausible way to reduce vitamin D deficiency is through food fortification.

Objective: The objective was to analyze that fortification with 800I.U. vitamin D_3 efficiently increase serum vitamin D levels and bone calcium absorption.

Materials and Method: Three different types of yogurts were made i.e. control yogurt had no added vitamin D_3, product 1 had 600 I.U. vitamin D_3 and product 2 had 800 I.U. vitamin D_3. 30 vitamin D deficient albino rats were randomly divided into three groups. Baseline biochemical tests were done on zero day. After that control group was given control yogurt, group 1 was given 600 I.U. vitamin D_3 fortified yogurt and group 2 was given 800 I.U. vitamin D_3 fortified yogurt for four weeks. After four weeks, rats were bled with cardiac puncture and their blood was collected, rats were slaughtered and their left femur was removed.

Results: One way ANOVA was used to compare serum vitamin D, blood urea nitrogen and serum creatinine before and after trial. Serum vitamin D was increased in group 1 and group 2 but the mean serum vitamin D in group 2 (38.66±2.12) was better than mean serum vitamin D in group 1 (23.25±0.87). Mean calcium concentration in femur of group 2 rats was 298±11.88 and in group 1 was 216.79±18.40. There was no significant difference ($P>0.05$) between blood urea nitrogen and serum creatinine before and after trial.

Conclusion: Increased vitamin D dose resulted in better calcium concentration in bones and had better outcomes in increasing serum vitamin D levels.

Keywords: Vitamin D, Fortification, Bone health

INVESTIGATING THE ANTIOXIDANT POTENTIAL OF DATE PLUM PERSIMMON FRUIT TO MITIGATE OXIDATIVE STRESS INDUCED DIABETES IN RAT MODEL

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Abstract

Background:

Date plum persimmon is a wonderful functional food providing natural poly-phenolic antioxidants that protect major systems in our body against free radical attack. Excess of these free radicals is called as oxidative stress which can trigger serious changes in cellular chemistry that can lead to non-communicable diseases such as diabetes. Taking into account the significance of the natural antioxidants, this study was designed to evaluate the phenolic compounds and antioxidant potential of date plum fruits and their antidiabetic effect in streptozotocin induced diabetic rats. Annually about 78,000 youth are diagnosed to be suffering from diabetes type 1 all over the world.

Methodology:

In vitro antioxidant potential (DPPH assay), total phenolic and flavonoid content (TPC and TFC) was assessed using three different solvents i.e. aqueous, methanol and acetone. Chemical composition was also determined. For efficacy trial diabetic rats were randomly assigned to three groups. T_o was diabetic control which was given normal diet. T1 contained diabetic rats that were treated by giving date plum fruit powder at 7% of their feed. Rats of T2 group were given aqueous extract of equivalent amount of fruit given to T_1. Body weight and other blood parameters (sugar level and serum insulin) were measured every week.

Results:

Results of proximate analysis showed that date plum is a wonderful source of fiber (10%) as well as phenolics and flavonoids. Aqueous extract comparatively showed better results for TPC and TFC i.e. 18.4±0.56mg GAE/g and 13.9±0.12mg quercetin/g of fruit respectively; while highest scavenging activity was shown by methanolic extract i.e. 87.7±1.87%. Biochemical analysis showed 30% reduction in blood sugar level and an increase of about 4.42µlU/ml in serum insulin level in T_1.

Conclusion:

Overall better results were obtained for T1 (raw date plum was added in feed) compared to date plum extract (T2). This clearly shows that this fruit is meant to be consumed raw in order to be cherished from its miraculous medicinal effects as it might contain some sensitive bioactive nutrients that are denatured or lost while processing (or heating for extract preparation).

MALNUTRITION MATTERS IN PAKISTANI HOSPITALIZED PATIENTS: MALNUTRITION RISK IN HOSPITALIZED PATIENTS IN A TERTIARY CARE CENTER USING THE MALNUTRITION UNIVERSAL SCREENING TOOL

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Abstract

Background: According to WHO Pakistan statistics, 4.2 % of Pakistan's population comprises of elderly over 65 years of age and this percentage is expected to double by 2025. Pre-existing malnutrition in elder hospitalized patients gets severe due to many factors. Countless reasons which contribute to patient's poor nutritional status in hospitals are, decreased food intake due to anorexia, gastrointestinal symptoms, compromised ability to chew, swallow etc.

Objectives: The objective of this study was to find out the point prevalence of malnutrition risk in elderly patients using Malnutrition Universal Screening Tool (MUST), at tertiary care hospitals in Lahore.

Methodology A cross-sectional study was conducted in tertiary care hospitals of Lahore. The point prevalence of malnutrition was determined by using MUST. Patients who were terminally ill were excluded from study. Demographic features including name, age, social status and diseased condition was recorded. Other possible methods were adopted to assess weight and height for those patients who were unable to stand. Nutritional intake of patient was assessed for past 5 days which would be related to the acute disease effect score. History of weight loss for past 3-6 months was recorded. By using data, scores were determined for BMI, weight loss and acute disease effect. On the basis of total score, patients were categorized in low, medium and high risk for malnutrition.

***Results*:** Out of 341 patients who were registered in study, 131(38.4%) were females and 210(61.6%) were males with the average age of 67 and 68 years respectively. Among these understudy patients 51.3% were at high risk, 20% were at medium risk, and 29% were at low risk of malnutrition. Survey of volunteers indicated that MUST was easy to use.

Conclusion: The MUST was an easy and effective method to define the point prevalence in Pakistani patients. Moreover, this system-wide screening method will bring about the best practices in nutrition care by involving stakeholders and decision makers in addressing any shortcomings in nutrition care and in forming baseline for future nutritional interventions.

FACTORS INFLUENCING ADHERENCE TO DIETARY AND FLUID RESTRICTIONS AMONG HEMODIALYSIS PATIENTS

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Abstract

Background

Compliance to dietary guidelines is crucial for the management of end stage renal disease (ESRD) patients. Adherence to dietary restrictions help to avoid the risk of complications like cardiac failure, fluid retention and breathing difficulty.

Aim

This study intended to assess the factors affecting adherence among hemodialysis patients.

Methods

This study used a cross-sectional, correlational design. One hundred and five maintenance hemodialysis patients were recruited from Shalamar and Sheikh Zayed hospitals by purposive sampling. Data on serum phosphorous, serum potassium and interdialytic weight gain (IDWG) was gathered from patient's medical record as an indicator of compliance rate. A questionnaire with three sub-sections including demographic and disease specific characteristics, dietary knowledge and attitude towards adherence was developed in order to assess the factors influencing compliance rate.

Results

Results of the study showed that only 33.3% of maintenance hemodialysis patients were adherent to fluid restrictions. On the other hand, the compliance rate for phosphorous and potassium restrictions was 47.6% and 88.3%, respectively. Therefore, results revealed that there was poor adherence to fluid and phosphorous restrictions. Furthermore, correlational analysis showed that age, duration of dialysis, presence of depression, dietary knowledge and attitude towards adherence are significantly correlated with the indicators of adherence ($p \leq 0.05$).

Conclusion

It was concluded that there was poor adherence to phosphorous and fluid restrictions. Dietary knowledge and attitude towards adherence are potential factors influencing adherence to renal dietary regimen. Therefore, renal dietary adherence may be improved by improving dietary knowledge and by motivating patients to change their attitude towards treatment regimen through effective dietary counseling and routinely screening for signs of depression.

ASSOCIATION OF DEPRESSION ON URINARY METABOLITES IN UNIVERSITY GOING MIDDLE CLASS ADULT FEMALES IN THE CITY OF LAHORE

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Abstract

Depression is the most prevalent psychiatric disorder affecting health of world's population. It is reported to affect the normal physiology of humans, and has been reported to cause an elevated risk of cardiovascular disease, stroke, and cancer among others. Metabolomics approach can aid in understanding the pathophysiology of depression and also is useful for clinical diagnosis of depression. The present study was conducted to find a relationship between dietary metabolites in urine and stage of depression. Urine is an organic waste material, containing metabolic end products from a wide range of nutrients. 70 females of 18-25 years of age were selected by convenient sampling. Urine samples of 10 non-depressed and 60 depressed subjects were categorized in three categories depressed, mild depressed and severely depressed by using beck's depression inventory with 21 questions samples were analyzed using dipstick method. Dipstick test analyzed 10 parameters that were specific gravity, pH, protein, glucose, ketones, Hb, WBC's, nitrites, bilirubin, and urobilinogen. All the subjects were interviewed to check if they have any other health conditions that might be confounding factors, the exclusion criteria was set for participants which states that they shouldn't be pregnant, having any chronic diseases(CKD,CLD etc), shouldn't be hypertensive or diabetic, their body temperature is not more than 37°C, they shouldn't be on any high protein or keto diet, they aren't consuming any medicines or supplements currently lastly they shouldn't have done vigorous exercise at least 4 hours before sampling. This was set for the same reason you stated, also the ailments like CKD or Diabetes could have effect on the proteins, glucose and ketone levels. So yes, it was all sorted prior to sampling.According to the results, glucose and leukocytes level were elevated in depressed subjects versus non depressed subjects. Protein was raised in extremely depressed participants whereas, specific gravity, urobilinogen, glucose, leukocytes were higher in moderately depressed participants. This study suggested link between depression and increased urinary metabolites which may further impact health of depressed person. Thus, through proper dietary interventions along with other treatments depression can be managed.

PREBIOTICS ADDED TO IRON FORTIFICANTS HELP ENHANCE ABSORPTION OF IRON AMONG ANEMIC WOMEN

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Abstract:
According to recent estimates, "Hidden Hunger" affects as many as 2 billion people across the people. It not only compromises the nutritional status of individuals, but also deteriorates the overall quality of life. The current research was designed to evaluate the cumulative effects of prebiotics and iron fortificants with regards to the management of Iron Deficiency Anemia among anemic women of reproductive age group. To serve the purpose, a double blind, Randomized Controlled Trial, involving iron deficient women of reproductive age group was conducted for three months. Seventy five women were selected and randomly divided into four treatment groups and 1 control group; 15 women in each group. Accordingly, five different types of fortified wheat flours were made, based on provision of varying doses of prebiotics and iron fortificants. Two iron salts (NaFeEDTA and $FeSO_4$) and two prebiotics (Inulin and Galacto oligosaccharides) were used to prepare fortified wheat flours. Blood samples were collected from overnight fasted women at baseline, 30th, 60th and 90th day. Serum Iron and Serum Ferritin were evaluated and compared among different groups at the aforementioned study intervals. Mean square values for Serum Iron and Serum Ferritin revealed that significant variations existed for the effect of groups, study intervals and their interaction (P-value < 0.05). For Serum Iron, maximum mean value was seen in group G_4 (fed with 963mg/kg GOS+30ppm $FeSO_4$) while for Serum Ferritin, the highest value was attained by group G_1 (fed with 963mg/kg Inulin+10ppm NaFeEDTA). The study concluded that addition of prebiotics to iron fortificants helped enhance absorption of iron, which was evident by significant increase in both Serum Iron and Serum Ferritin levels.

Keywords: Hidden Hunger; Iron Deficiency Anemia; Serum Iron; Serum Ferritin; Pre-biotics, Iron Fortificants

ASSOCIATION OF MATERNAL BMI, MEDICAL AND LIFESTYLE HISTORY WITH GESTATIONAL AGE AND BIRTH WEIGHT IN A MULTI-CENTERED STUDY IN LAHORE.

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Background: Birth weight is a major public health concern as Low Birth Weight is associated with neonatal morbidity and mortality.
Methodology: A cross sectional survey was conducted at 2 government and 5 private centrally located hospitals in Lahore. 800 postnatal women were approached consecutively and purposively enrolled after giving verbal informed consent. BMI was calculated as ht(m^2) / wt(kg) and classified according to WHO guidelines Medical and lifestyle history were self-report measures recorded on a structured questionnaire. Birth weight and gestational age was extracted from the hospital records. SPSS (v. 22) was used to analyze data.
Results: Being underweight at booking was associated with preterm (27.6%) than having normal BMI (11.5%), p=0.001. Being underweight at booking was also associated with LBW (48.3%) than having normal BMI (18.4%). Incidence of preterm (p=0.002) and LBW (p=0.000) neonates was lower among mothers who were overweight and obese at delivery.
Mothers who had a sedentary lifestyle had a higher number of preterm (n=11, 27.5%) than who were active (n=40, 10.5%), p=0.007. Similarly, mothers who were active had a lower number of LBW neonates (n=52, 13.6%) than who were sedentary (n=10, 25.0%), p=0.048. Gestational age and birth weight were not associated with passive smoking and maternal smoking.
Pre-delivery HTN, diabetes mellitus and other illnesses during pregnancy significantly increased the odds of having a preterm neonate (p<0.05). History of HTN and pre-delivery HTN significantly increased the odds of having an LBW neonate (p<0.05).

Consumption of supplements was not associated with gestational age. Women who never or seldom consumed supplements had a higher probability of LBW than those who were frequently or always consuming supplements (p=0.015).

Conclusion: Undernutrition, sedentary lifestyle, HTN, DM and other illnesses had an association with preterm and LBW. Never/seldom use of supplements was only associated with LBW.

Key words: BMI, physical activity, smoking, supplements, hypertension, diabetes mellitus.

NUTRITIONAL STATUS OF PATIENTS ON HEMODIALYSIS AND ETIOLOGICAL FACTORS INVOLVED:

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Abstract

Malnutrition is a major negative prognostic factor in dialysis patients. Malnutrition in dialysis patients is linked to several factors including poor appetite, reduced dietary intake, inflammation, loss of nutrients during dialysis, and the breakdown of muscle protein induced by metabolic acidosis and co morbid conditions due to uremia and drug-related factors. Therefore Nutritional assessment of patients on maintenance dialysis is a vital function of health care providers. The objective of this study was to determine the nutritional status and prevalence of malnutrition and its predictors among hemodialysis patients. Total 44 patients aged between 23 to 60 years undergoing dialysis for at least 6 months were included in the research. Their proper nutrition assessment was done through Nutrition assessment form including anthropometric measurements (height, weight, mid-upper arm circumference (MUAC), biochemical parameters (serum albumin, urea, creatinine) dietary data (general dietary habits, 24 hour recall, physical activity) and MNA (mini nutrition assessment) form including 5 questions to categorize the patient into three main categories. Data when analyzed showed that out of 44 patients 63% patients were malnourished, 34% were at risk of malnutrition and 3% were having normal nutritional status according to MNA-SF. The mean of mid-arm circumference was low even in the presence of mean albumin and BMI that was within the normal range. Poor dietary habits due to lack of knowledge, GI issues, affected mental health were strongly associated with Malnutrition when analyzed through the form designed. It was concluded that Nutrition is a neglected aspect of the dialysis patients. The reasons are multiple including inadequate dialysis, poor socioeconomic status, lack of knowledge and dietary

counseling and multiple co morbidities. It can however be addressed by proper guidance of patients and management of the above mentioned factors.

MALNUTRITION MATTERS IN PAKISTANI HOSPITALIZED PATIENTS: MALNUTRITION RISK IN HOSPITALIZED PATIENTS IN A TERTIARY CARE CENTER USING THE MALNUTRITION UNIVERSAL SCREENING TOOL

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Background: According to WHO Pakistan statistics, 4.2 % of Pakistan's population comprises of elderly over 65 years of age and this percentage is expected to double by 2025. Pre-existing malnutrition in elder hospitalized patients gets severe due to many factors. Countless reasons which contribute to patient's poor nutritional status in hospitals are, decreased food intake due to anorexia, gastrointestinal symptoms, compromised ability to chew, swallow etc.

Objectives: The objective of this study was to find out the point prevalence of malnutrition risk in elderly patients using Malnutrition Universal Screening Tool (MUST), at tertiary care hospitals in Lahore.

Methodology A cross-sectional study was conducted in tertiary care hospitals of Lahore. The point prevalence of malnutrition was determined by using MUST. Patients who were terminally ill were excluded from study. Demographic features including name, age, social status and diseased condition was recorded. Other possible methods were adopted to assess weight and height for those patients who were unable to stand. Nutritional intake of patient was assessed for past 5 days which would be related to the acute disease effect score. History of weight loss for past 3-6 months was recorded. By using data, scores were determined for BMI, weight loss and acute disease effect. On the basis of total score, patients were categorized in low, medium and high risk for malnutrition.

***Results*:** Out of 341 patients who were registered in study, 131(38.4%) were females and 210(61.6%) were males with the average age of 67 and 68 years respectively. Among these understudy patients 51.3% were at high risk, 20% were at medium risk, and 29% were at low risk of malnutrition. Survey of volunteers indicated that MUST was easy to use.

Conclusion: The MUST was an easy and effective method to define the point prevalence in Pakistani patients. Moreover, this system-wide screening method will bring about the best practices in nutrition care by involving stakeholders and decision makers

in addressing any shortcomings in nutrition care and in forming baseline for future nutritional interventions.

HIGH DOSE OF VITAMIN D_3 IN FORTIFIED YOGURT SHOWED BETTER RESULTS IN ACHIEVING OPTIMAL SERUM VITAMIN D LEVELS AND ENHANCED BONE CALCIUM DEPOSITION IN VITAMIN D DEFICIENT RATS.

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Abstract:

Background: Vitamin D is a fat soluble vitamin which can be photosynthesized in skin under sunlight. Sunlight is the substantial source of vitamin D which is affordable by all. Vitamin D deficiency is a crucial public health problem which is prevalent even in sunny areas like Pakistan. Since vitamin D is not present in so many foods so the plausible way to reduce vitamin D deficiency is through food fortification.

Objective: The objective was to analyze that fortification with 800I.U. vitamin D_3 efficiently increase serum vitamin D levels and bone calcium absorption.

Materials and Method: Three different types of yogurts were made i.e. control yogurt had no added vitamin D_3, product 1 had 600 I.U. vitamin D_3 and product 2 had 800 I.U. vitamin D_3. 30 vitamin D deficient albino rats were randomly divided into three groups. Baseline biochemical tests were done on zero day. After that control group was given control yogurt, group 1 was given 600 I.U. vitamin D_3 fortified yogurt and group 2 was given 800 I.U. vitamin D_3 fortified yogurt for four weeks. After four weeks, rats were bled with cardiac puncture and their blood was collected, rats were slaughtered and their left femur was removed.

Results: One way ANOVA was used to compare serum vitamin D, blood urea nitrogen and serum creatinine before and after trial. Serum vitamin D was increased in group 1 and group 2 but the mean serum vitamin D in group 2 (38.66±2.12) was better than mean serum vitamin D in group 1 (23.25±0.87). Mean calcium concentration in femur of group 2 rats was 298±11.88 and in group 1 was 216.79±18.40. There was no significant difference ($P>0.05$) between blood urea nitrogen and serum creatinine before and after trial.

Conclusion: Increased vitamin D dose resulted in better calcium concentration in bones and had better outcomes in increasing serum vitamin D levels.

Keywords: Vitamin D, Fortification, Bone health

IMPACT OF NUTRITION EDUCATION PROGRAM ON NUTRITIONAL BEHAVIORS CHANGES FOR OSTEOPOROSIS PREVENTION

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ABSTRACT:
Osteoporosis prevention education program was intended to increase the anticipatory behaviors using Health Belief Model. The undertaken study was conducted to examine the relationship between osteoporosis knowledge, beliefs and dietary calcium intake among young women. The quasi-experimental study design was conducted. The sample comprised of 100 osteopenic students aged 20-25 years. Two general subjects groups were selected conveniently and one was selected as experimental group (n=50) and other as control group (n=50). Per and post testing method was utilized to draw results. Follow-up was taken after two months to evaluate the effectiveness of nutrition education program. Osteoporosis Knowledge scale, and Osteoporosis Preventing Behaviors Survey tools were used to collect data. The results showed that the nutrition knowledge of students was significantly improved to p-value 0.001. Post testing findings showed a significant relationship between nutrition education and increase in nutritional knowledge related practices, increases in behavior changes, decrease in barriers towards disease were reduced with p value < 0.05 for all variables among experimental group. It was determined that health belief model is an effective tool for development of nutrition intervention program to bring change in the nutrition behaviors and nutrition education as well as to increases the knowledge of participants about osteoporosis.

KEYWORDS:
Osteoporosis, Osteoporosis knowledge scale, Nutrition Education program, Behaviors Changes

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COMPARISON OF ANTHROPOMETRY, BLOOD CHEMISTRY AND IMMUNITY BEFORE AND AFTER ZINC FORTIFIED MILK CONSUMPTION IN SCHOOL GOING CHILDREN FROM LOWER SOCIOECONOMIC BACKGROUND

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ABSTRACT

Micronutrient especially trace mineral deficiencies are becoming one of the leading problems in Asian countries. One of those trace mineral is Zinc, about 20.6% of Pakistani Children are Zinc deficient which has resulted in their poor growth, delayed wound healing, loss of appetite and compromised mental health. Now a day zinc supplementation are widely prescribed by the doctors for curing different health related issues like chronic diarrhea and delayed growth cases. But fortifying minerals in food product is a more reliable and acceptable form, when we want to introduce something in a society as a whole. That is why we introduced Zinc fortified milk in which every 200ml of milk contained 10mg of zinc, given to the children of age 9 to 13 years under experimental study for 15 days. Our study shows that Zinc is important for the proper function and growth of our body. In 15 days there were prominent differences noticed in children's anthropometric values. The difference in pre and post intervention values of BMI, Weight and Height were marked statistically significant, as their p values were 0.024, 0.004 and 0.019 respectively with a positive correlation with the quantity of zinc administered. But blood chemistry showed contrary results. Intervention of zinc fortified milk resulted in decreasing number of blood cells, like the values of hemoglobin decreased from pretest mean value of 12.34±1.26 to posttest mean value of 12.06±1.31, with 0.05 p values that shows it was a statistically significant decline of HGB, Quantity of Zinc intervened also showed negative correlation with Red and white blood cells as their R values were -0.3 and -0.26 respectively. There is need to combat with the increasing zinc deficiency issues reported especially in children by giving them zinc supplements or food fortification or by adding Zinc rich food in their daily routine diet . But Zinc in any form should not be added or administered with milk or with milk products as it will have negative results on consumer's body.

A REVIEW ON ULCERATIVE COLITIS AND DIETARY INTERVENTIONS FOR ITS MANAGEMENT

Bint-e-Hawa

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Ulcerative colitis UC, the type of irritable bowel syndrome is the most prevalent inflammatory bowel disease worldwide and is associated with chronic inflammation in

the colon. This condition can lead to various harmful outcomes and can cause various deficiencies in the sufferer's body. Various deficiencies can also onset due to the decreased absorption of various nutrients by the colon and bleeding of rectum. Although it is considered to be an outcome of immunological defects, heredity as well as some environmental factors but a few studies indicated a relation between diet and ulcerative colitis. From the past years the rate of ulcerative colitis increased with alteration in eating habits. The exact link and mechanism of effect of diet on IBD including ulcerative colitis is unknown but a few studies indicated the effect of these states on gut microbiota and proposed that a proper diet can help maintain the condition from deteriorating as well as may be able to delay the symptoms. These studies showed that how different dietary habits of different areas, as well as different cultural eating habits can affect gut microbiota and thus lead to the onset of ulcerative colitis. Relationship of ulcerative colitis with various food components such as PUFA, eicosapentaenoic acid, docosahexaenoic acid, vitamin D, zinc and dietary amino acids has also been reported. Some food additives including cellulose, xanthan gum, maltodextrin and various emulsifying agents also have an effect on the integrity of colon. This review article is focused on to describe the pathogenesis of ulcerative colitis. The possible dietary causes of ulcerative colitis are also discussed to avoid any disease accelerating habits as well as the main focus of this review article is to summarize all the possible interventions for the dietary management of this worldwide life threatening disorder.

EFFECT OF MALNUTRITION ON DEVELOPMENT OF SCHOOL GOING CHILDREN

ANIQA GHAUS

ABSTRACT

This report examines malnutrition remains the most applicable wholesome issue in creating nations; in certain pieces of the world, nourishment and its related conditions influence the efficiency and mental ability of people. Concentrates worried about the impacts of lack of healthy sustenance on the developing brain might be partitioned into two gatherings, those managing physical and clinical mind development and maturity, and those managing the improvement of 'mind work, for example neurological, psycho-motor, and intellectual development .

Malnutrition is related with both basic and practical pathology of the mind. A wide scope of cognitive deficits has been accounted for in malnourished youngsters. Hunger causing stunting and wasting in kids could likewise influence the progressing advancement of higher psychological procedures during adolescence.

Abstract

Cymbopogon citratus (lemon grass) is a tropical herbaceous plant that is widely grown in south Asia and known to have anti-inflammatory, anti-oxidant and hepato-protctive effect. Cymbopogon citratus has a protective and beneficial effect on hydrogen peroxide induced liver injury. Liver produces reactive oxygen species (ROS) which is responsible for oxidative tissue damage. Evidences from many researches have revealed that oxidative stress has a vital part in introduction of many clinical disorders. Reactive oxygen species such as hydrogen peroxide produces oxidative stress and studies has described that oxidative stress has a crucial role in the introduction and development of many liver disorders. C. citratus has known to decrease the liver damage due to hydrogen peroxide and related to decrease significantly the raised levels of ALT, AST, ALP, LDH, MDA in serum.

DIETARY COMPLIANCE AND CONSTRAINTS OF HOSPITALIZED ELDERLY PATIENTS

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Abstract

Background

There has been a progressive shift from communicable to non-communicable diseases (NCDs) round the globe. Lifestyle factors, especially unhealthy dietary intake, may pose a risk of developing such conditions. Dietary compliance to recommendations may decrease the chances of hospital induced malnutrition and thus may impact on length of hospital stay and decrease the overall burden of health care costs.

Methods

In order to find out dietary compliance and constraints of patients, a cross sectional survey was carried out on a convenience sample of 100 elderly patients (≥40years) collected from in-patient departments of three hospitals (Jinnah hospital, Surraya Azeem Hospital and Ittefaq hospital) of Lahore, Pakistan. Information regarding dietary recommendations by hospital dietitian, actual dietary intake of patient in the hospital, and dietary constraints was analyzed through interviewed questionnaire. Dietary compliance with dietitian notes was scored on a ten point scale.

Results

According to the study results, common health conditions responsible for hospitalization of patients included gastrointestinal disorders (24%), neurological disorders (12%), kidney disorders (10%), liver dysfunction (9%), respiratory diseases (8%), cardiac disease (7%), and diabetes (3%). Out of the total sample, more than half (62%) of the patients were found to be non-compliant of dietitian notes. The average dietary compliance scale rating was found to be 5.29 ± 2.82 out of 10. Sample reported lack of knowledge as the most common hindrance in following the recommended diets.

Conclusion

Patients not following dietary recommendations may be more prone to disease progression, malnutrition and thus, prolonged length of hospital stay. We conclude that dietary recommendations provided by dietitians should strictly be followed up through removing the constraints of patients in adhering to those recommendations.

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