PAKISTAN NUTRITION AND DIETETIC SOCIETY

PNDS NEWS

Newsletter of Pakistan Nutrition & Dietetic Society

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Dear Members,

On behalf of Pakistan Nutrition and Dietetic Society, I wish that each day of 2018 is filled with success for all of us. I believe, success is an outcome of persistent endeavors.

This past year of 2017, for PNDS, comprised of several activities, achievements and efforts towards making the systems robust. PNDS represents the field of nutrition in and outside of Pakistan. Many PNDS members attended national and international conferences to improve their skills and competencies in the field of nutrition and dietetics. Active participation in professional development events shows enthusiasm and reflects on flourishing nutrition profession in Pakistan. PNDS should also take pride in getting Practice-Based Evidence in Nutrition (PEN) subscription and Evidence Analysis Library of Academy of Nutrition and Dietetics (AND) for its members.

I would urge you all to participate in professional development activities and to present your achievements and skills through writing articles for the PNDS newsletter.

I take pride in letting you know that PNDS is also planning to celebrate March Nutrition Month, 2018. Let's all come forward and participate collectively to make it a huge success!

Regards,

Meena Iqbal Farooqi

Guidelines for contributors:

URL: http://rdn.pnds.org/pnds-activities/news-letter/

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Calcium and Weight Loss: Is it for Real?

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INTRODUCTION

Recent shifts in dietary patterns and increased consumption of energy-dense, high sugar diets and refined carbohydrates accompanied by reduced energy expenditure and sedentary lifestyle has resulted in an increased prevalence of obesity among adolescents throughout the world. The prevalence of overweight in adolescents has tripled since 1980[1]. Both overweight and obesity has become a major public health issue. More than 50 percent of the 671 million individuals classified as obese in the world live in ten countries listed in descending order USA, China, India, Russia, Brazil, Mexico, Egypt, Germany, Pakistan, and Indonesia.

CALCIUM INTAKE AND WEIGHT LOSS … THE STORY

The "milk builds strong bones" mantra was drilled in our heads as kids, but this essential mineral isn't just for building strong, healthy bones — studies suggest that calcium could be another weapon against body fat.[2]Energy balance is the critical factor in weight regulation. During the last ten years, there has been interest in the possibility that the level of dietary calcium may influence body weight and fat mass. Some studies also suggested that calcium or dairy products could aid in weight loss[4] and therefore efforts have been made to understand the mechanism of these dietary effects.

CALCIUM MAY HELP REDUCE BODY FAT… IF YOU'RE DEFICIENT

A study found that obese women participating in a weight loss program who were calcium deficient lost more than 13 pounds after taking daily calcium supplements, compared to the control group, which lost a little over two pounds. A review of studies on the link between dietary calcium intake and body weight suggests that calcium seems to bind more fatty acids in the intestines, thereby inhibiting the absorption of some fats. The review concluded that "calcium and dairy food intake can influence many components of energy and fat balance."[3]

Another, study showed subjects who consumed three servings of yogurt daily as part of a reduced-calorie diet lost more weight than those who simply cut calories alone. The yogurt eaters consumed around 1,100 milligrams of calcium daily. The non-yogurt eaters consumed about 500 milligrams of calcium a day (the average amount in the typical American's diet).The yogurt eaters lost 22 percent more weight, 61 percent more body fat, and 81 percent more abdominal fat than the non-yogurt eaters. As with the most recent study, the researchers hypothesized that the extra calcium provided by yogurt played a role in increasing the amount of weight lost during the study period.[3]

BUT AREN'T DAIRY FOODS FULL OF FAT

Dairy foods are generally high in fat, but not always – regular milk is about 45% to 50% fat by energy, while skim milk has a very small amount. However, dairy foods are also a good source of many nutrients – including calcium, phosphorus, magnesium, potassium, iodine and vitamin B12. In the context of this review, studies using low fat or regular dairy foods had a similar beneficial effect on weight loss.[5]

THE SCIENCE

Michael Zemel, PhD, director of The Nutrition Institute at the University of Tennessee at Knoxville, is actually the hero of this tale. In studies of both mice and men, Zemel and colleagues have been the first to show that calcium stored in fat cells plays a crucial role in regulating how fat is processed and stored by the body. The more calcium there is in a fat cell, the more fat the cell will burn -- and the greater the weight loss, according to Zemel theory.

The mouse evidence: In one study, Zemel used mice that were specially bred to be obese. He fed the mice a high-fat, high-sugar diet for six weeks. All had a 27% increase in body fat. He then put the mice on a restricted-calorie diet, and gave calcium to one of the two groups. The calcium made a big difference. Mice that didn't get any calcium had an 8% loss of body fat. Mice getting calcium supplements had a 42% decrease in body fat. But calcium from dairy products produced the best weight-loss results. Mice on a medium-dairy diet had a 60% decrease in body fat, while those on a high-dairy diet lost 69% body fat.[6]

The human evidence: A study of 32 obese people on a low-calorie diet were divided into three groups: those whose diet was high in dairy, those who ate little dairy but took calcium supplements, and those whose diets were low-calcium/ and low-dairy. After 24 weeks, everyone lost some body fat, but those who ate the dairy-rich diet lost five pounds more. The dairy eaters' waists also shrank by more than an inch and a half -- the others lost only about one-quarter inch. Turns out, the yogurt group lost mostly belly fat, Zemel reported. Excess fat in the abdominal area has been linked to a high risk of heart attack and other health problems.[6]

ROLE OF CALCIUM IN OXIDATIVE & INFLAMMATORY STRESS

Increased circulating 1, 25 (OH)2 Din presence of low calcium is also involved in the modulation of cytokine production in multiple cell types, including adipocytes & macrophages, causing oxidative and inflammatory stress[7].The impact of suboptimal-calcium, high-calcium and high-dairy diets on oxidative and inflammatory stress in adipocyte has further substantiated this mechanism. High calcium diet resulted in decreased inflammatory markers such as tumor necrosis factor alpha (TNF), interleukin-6 (IL-6) and CRP regulating energy metabolism in adipose tissue and skeletal muscle. Also an inverse pattern was noted for anti-inflammatory markers such as adiponectin and IL-15 mRNA.[7,8]

CALCIUM AND FECAL LIPID LOSS

High calcium intake has been shown to increase fecal fat excretion in different studies. An increase in calcium intake of 1300 mg/d, caused a daily increase in fecal fat excretion of 8.2 gm in subjects consuming a diet with 30% of energy derived from fat. Other studies have shown a similar effect but quantitatively smaller[9,10].The increased fat excretion is presumably due to formation of insoluble calcium fatty acid soaps or to the binding of bile acids, which impairs the formation of micelles[9]. When fat is absorbed, it enters blood circulation in the form of chylomicrons. Thus, if calcium partly inhibits fat absorption, a decrease in the postprandial increase in chylomicron triacylglycerol would be expected. However, no evidence in the literature suggests that calcium intake interferes with chylomicron clearance[11]. It is therefore most likely that the decreased postprandial lipid response is due to decrease in fat absorption.

CALCIUM SUPPLEMENTATION ON MARKERS OF HUMAN FAT METABOLISM

Bortolottiet al[12] examined the role of calcium in weight loss by applying the mechanics of human physiology. The group conducted a placebo-controlled, crossover experiment in low calcium consumers who received 800 mg dairy calcium/ day for 5 weeks and a similar placebo treatment after a wash-out period. Whole body energy expenditure and fat oxidation were measured by indirect calorimetric, subcutaneous adipose tissue lipolysis was assessed by microdialysis, and gene expression studies were conducted on adipose tissue that underwent biopsy. [13]Some reports also suggest that dietary calcium supplementation may be effective only in person with a low calcium intake[7],the researchers therefore included those subjects whose calcium intake was less than 400 mg/day. Despite the low levels of dietary calcium all the subjects had normal plasma calcium, phosphate, PTH and osteocalcin levels. Bortolotti et al showed that calcium supplementation did not alter basal lipid metabolism, because plasma free fatty acid concentrations and whole-body glycerol turnover were similar in the presence and absence of calcium supplementation. They even evaluated the possibility that dietary calcium may synergistically increase the effects of physiologic stimulators of lipolysis and lipid oxidation by acutely administering caffeine and epinephrine into subjects but their results showed that epinephrine-stimulated adipose tissue glycerol concentrations were not significantly altered by calcium supplementation.

Caffeine is known to increase energy expenditure (EE) and lipid oxidation and to enhance adipose tissue lipolysis, at least in part through the stimulation of the sympathetic nervous system. Caffeine administration did enhance total EE, lipid oxidation and plasma free fatty acid concentrations, both in the presence and absence of calcium. Therefore, the results do not support the hypothesis that increasing the calcium intake of overweight or obese low consumers of calcium increases EE and fat oxidation[12]

To evaluate the effect of calcium supplementation on adipose tissue lipid metabolism, a study of a complete set of RNA products from the genome was focused on key metabolic genes. The results showed calcium supplementation does not alter the expression of key genes involved in lipid storage and lipolysis.[12] However, results of Bonn et al showed a significant decrease in adipose tissue fatty acid synthase mRNA expression in a group of lean persons consuming high dairy calcium. But the decrease occurred only at an intake of 2500 mg Ca/d, which is considerably higher than the recommended dietary intake for calcium and is rarely attained in the regular diet. At a lower, more habitual intake of 1200 mg Ca/d, Bonn et al, just as Bortolotti, observed no change in the expression of markers of adipose tissue fat metabolism.[11-12] Researchers, however did observe 16% increase in daily urinary calcium excretion by calcium supplementation.

CONCLUSION

The results of the Bortolotti study were examined and analyzed based on the hypothesis that low calcium diets and high circulating 1,25(OH)2D concentration stimulate lipid synthesis and inhibits the lipolysis of adipose tissue. The inhibition of lipolysis decreases plasma free fatty acid concentration, and that decrease in turn reduces lipid oxidation. Bortolotti et al failed to find any effect of calcium supplementation on whole body or adipose tissue fat metabolism. The data presented seems to indicate that calcium does not have a significant role on weight control strategies. However, there is some role of dietary calcium intake in human body-weight regulation, but future studies need a better mechanistic approach to elucidate the key role of calcium in weight control strategies.

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CASE REPORT

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ABSTRACT

INTRODUCTION

Anorexia nervosa, first identified in Europe during the seventeenth century, was considered a comparatively rare condition, until the last few decades. Although there has been a gradual increase in its incidence in western world, it was believed that anorexia nervosa is uncommon in non-western societies. However, many Asian countries including Pakistan are undergoing rapid social and economic changes because of the widespread adoption of western styles, habits and attitudes perhaps resulting due to increasing exposure to media and internet. As a result of changes in cultural norms and concepts of feminine beauty, illnesses previously thought to be rare in these societies, might be becoming more prevalent. It was thought that adolescent girls and women aged 14-24 years are the most vulnerable group,[1] but the present case of Anorexia Nervosa in an adolescent boy attracts the attention.

CASE PRESENTATION

A 14-years old boy, student of class VIII, youngest of nine siblings, native of one of the Sindh districts was referred to the dietitian by psychiatrist of a tertiary care hospital for dietary counseling. When interviewed the father told that the patient was in his normal state of health two years ago when suddenly he started eating separately from the family. He used to take his food into his room but it was discovered after sometime that he hid the food in different parts of his room and was not consuming it. He was just consuming water, tea and juice; this continued for one and half years and he lost 20 kg in last two years.

He was then brought to Karachi and underwent psychotherapy along with the nutrition therapy which benefitted him and he regained 12 kg. During this period, he also began to wash his hands and feet repeatedly. His history revealed that he withdrew socially and became reluctant to go out and meet anybody. He complained of being laughed at being at school for being overweight and stopped going there. He reacted strongly against being told to eat and would get angry if someone insist him to do so. He also started weighing himself repeatedly and exercising excessively whenever he felt he had put on some weight.

MANAGEMENT AND OUTCOME

After admission, he was sent to the dietitian OPD for his nutritional counseling. He had misconceptions about foods and feared that by eating them he will gain weight . He was counseled by dietitian that liquids like fresh juices and soups and healthy foods like fruits and vegetables don't cause weight gain; instead they help in living a healthy life. After the first counseling session, he started taking fresh fruit juices and whole fruits. He was still reluctant to drink milk and thought it to be fattening. However, after another counseling session, he promised to make it a regular part of his diet and in the follow-up session, he told the dietitian that he had started drinking milk too. He was visited by the dietitian daily for counseling and to check his dietary intake progress. Slowly then he started eating ½ chapatti with dal/lentils and cooked vegetables. In a week time, he gained 1 kg, and before discharge, he had gained 2 Kg weight and was eating small portions of foods.

DISCUSSION

Although anorexia nervosa is more common in adolescent girls, this case study suggests adolescent boys may be at risk as well. Unfortunately, there is dearth of empirical information on eating disorders in Pakistan.[2]

Pakistan falls at number 6 out of 11 countries with the highest rates of eating disorders in the world where adolescent girls and boys are suffering from Anorexia Nervosa. A lot of unhealthy eating attitudes have been reported in Pakistan as well. Depression has been discovered as an association with anorexia nervosa, as well as dissatisfaction with body weights and shapes..[3]

Anorexia nervosa is a psychological and possibly life-threatening eating disorder characterized by a low weight, fear of gaining weight, a strong desire to be thin, and food restriction. Many people with anorexia see themselves as overweight even though they are underweight. Often, they weigh themselves frequently; eat only small amounts of certain foods. Some will exercise excessively, force themselves to vomit, or use laxatives to produce weight loss. Complications may include electrolyte imbalance, osteoporosis and infertility and women may suffer from amenorrhea.

While the causes of anorexia are uncertain, the physical effects are clear. When the body doesn't get the fuel it needs to function normally; it goes into starvation mode and slows down to conserve energy. If self-starvation continues and more body fat is lost, medical complications pile up and the body and mind pay the price.[4]

The risks associated with Anorexia Nervosa are severe and can be life threatening. People with Anorexia Nervosa may experience:

- Anaemia (iron deficiency)
- Reduced/compromised immune system function
- Intestinal problems (e.g. abdominal pain, constipation, diarrhoea)
- Loss of or disturbance of menstrual periods in girls and women
- Increased risk of infertility in men and women
- Kidney failure
- Osteoporosis– a condition that can lead to human bones becoming fragile and easy to fracture
- Heart problems (e.g. cardiac abnormalities, sudden cardiac arrest)
- Death[5]

THE ROLE OF DIETITIAN IN A MULTIDISCIPLINARY TEAM IN TREATING EATING DISORDERS.

Each eating disorder is unique, and the appropriate treatment approach varies depending on the severity of the illness.[6] The complex and multifaceted nature of Anorexia Nervosa requires a multidisciplinary team of experienced health care professionals including physicians, clinical dietitians and psychotherapist so that both physical and psychological aspect of the disorder can be addressed.

The first goal of the treatment is to stabilize the patient's physical condition and restoration of nutritional status. Otherwise dehydration, starvation and electrolyte imbalance can lead to serious health problems and even death. If patient has lost more than 30% of weight over 3 months' time or weighs 70 % or less of standard weight considered healthy for his height, hospitalization is essential.

Here clinical dietitians can play a very crucial role along with physician as restoration of body weight is the primary goal of eating disorders. The early phases of weight gain are filled with challenges for both patient and dietitian. At first the patient is encouraged to simply eat enough food to stop or minimize weight loss. Next the patient is started on a very slow progress of weight gain all the while with persistent counseling by the dietitian and intense psychotherapy by psychologist.

Dietitian work closely with psychologist to help patients develop a realistic view of food and to reshape their food selection and eating behaviors. Appropriate diet is crucial and must be tailored individually to each patient's need. With expert help and ongoing therapy, patient with anorexia can develop new mechanism for coping with life stresses, eventually replacing their disordered relationship with food with new healthier interpersonal relationships.[7]

CONCLUSION

In our view, both adolescent girls and boys can suffer from Anorexia Nervosa. We might expect to find an increasing incidence of eating disorders in Pakistan with widespread adoption of western lifestyles, habits and attitudes. Psychiatrists working in Pakistan need to be aware of important role of dietitian in the treatment and management of Anorexia Nervosa in adolescents so that they can include a dietitian in their team who can contribute in the treatment by translating evidence based scientific information into practical advice. She will not only counsel the patient with eating disorder as how to address his fears regarding food and body weight but also educate them how to make appropriate healthy foods choices (e.g. in a supermarket) [8]and make tailor made diet plans for individual patients .Dietitians can make special interest groups and conduct researches on Eating Disorders as well as upgrade and equip themselves by doing short courses on CBT(Cognitive Behavior Therapy).They can collaborate with Psychiatrists/ Psychologists to provide diet consultation for patients suffering from anorexia nervosa or other eating disorders, thus widening the scope of their dietetic practice.

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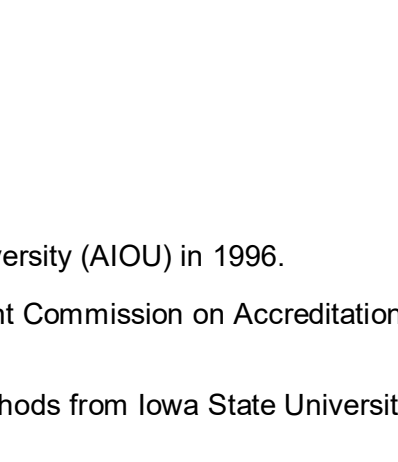
GHAZALA PERVEZ ZAMAN



PROFESSOR ®

FORMER HOD OF NUTRITION DEPARTMENT.

CHE LAHORE

ABOUT ME, MY FAMILY & MY HOME/CITY

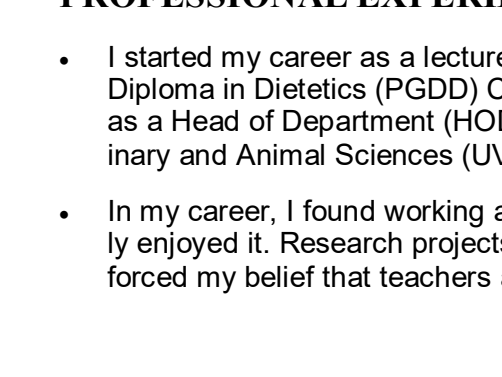
I was born in Lahore. I did my schooling at Sacred Heart and Convent of Jesus & Mary in Lahore a St. Mary High School Multan and my college was College of Home Economics Lahore.

My childhood was a wonderful period spent in the relaxed and protected environment provided by my parents. I was known for my cheerful personality and uncontrollable giggles.

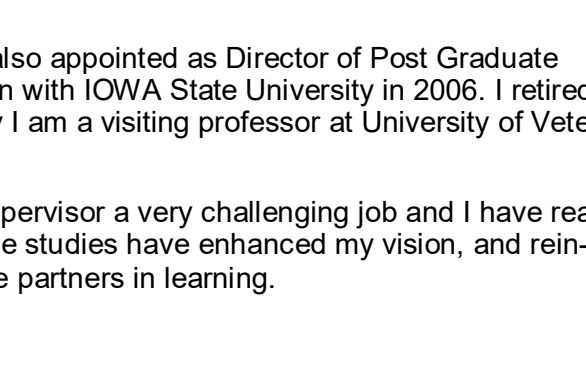
My parents gave me the confidence to participate and excel in academics and co-curricular activities. Teaching has been my passion and my story revolves around my profession as a teacher. I am very lucky and blessed to have a husband who has supported and encouraged me to pursue my professional ambitions. My children have played an instrumental part in helping me to overcome the challenges posed by the latest trends in Information and Communication Technology (ICT). My family has played a vital role in my success and achievements. I love to spend time with my family and especially the grandchildren.

EDUCATION & QUALIFICATION

- MSC (Home Economics) in 1976.
- Diploma in Hospital Dietetics from Allama Iqbal Open University (AIOU) in 1996.
- Residency program in Clinical Nutrition (accredited by Joint Commission on Accreditation of Health Care Organizations) from USA in 2000.
- Graduate Course in Nutrition Counseling & Education Methods from Iowa State University (ISU) in 2003.



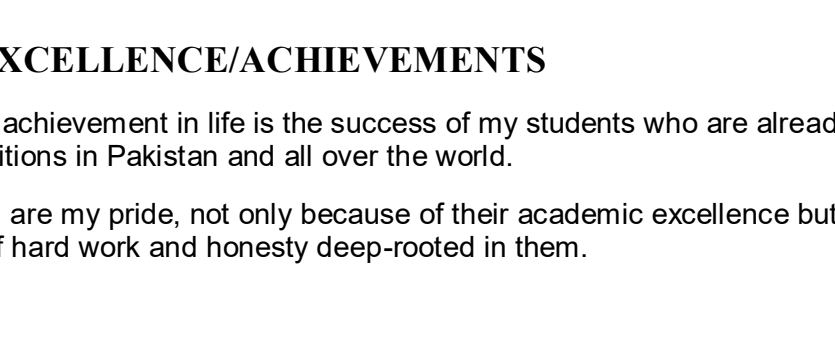
WITH THE DEEN OF FAMILY AND CONSUMER SCIENCES IN IOWA STATE UNIVERSITY (ISU)



LAUNCHING OF THE LAHORE CHAPTER OF PNDS AND MY APPOINTMENT AS ITS INCHARGE

PROFESSIONAL EXPERIENCES

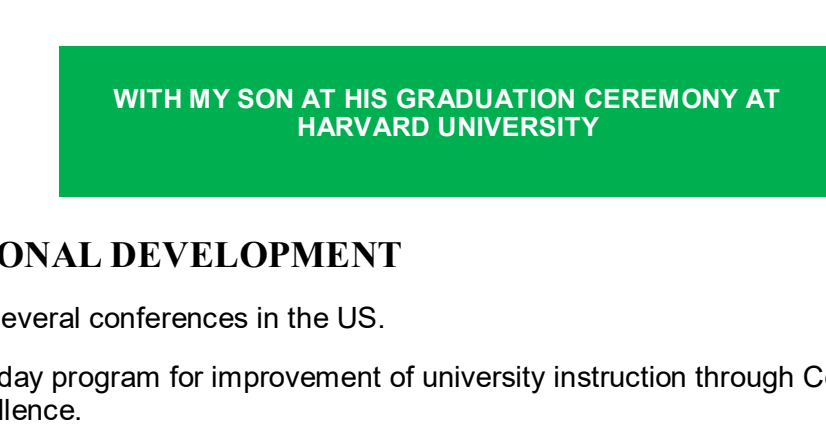
- I started my career as a lecturer. Later, I was also appointed as Director of Post Graduate Diploma in Dietetics (PGDD) CHE collaboration with IOWA State University in 2006. I retired as a Head of Department (HOD) and presently I am a visiting professor at University of Veterinary and Animal Sciences (UVAS), Lahore.
- In my career, I found working as a research supervisor a very challenging job and I have really enjoyed it. Research projects thesis and case studies have enhanced my vision, and reinforced my belief that teachers and students are partners in learning.



DELIVERING A THANKING NOTE AT THE LAUNCHING CEREMONY OF PNDS, LAHORE CHAPTER

AWARDS/EXCELLENCE/ACHIEVEMENTS

- My biggest achievement in life is the success of my students who are already placed at important positions in Pakistan and all over the world.
- My children are my pride, not only because of their academic excellence but also because of the value of hard work and honesty deep-rooted in them.



WITH MY SON AT HIS GRADUATION CEREMONY AT HARVARD UNIVERSITY

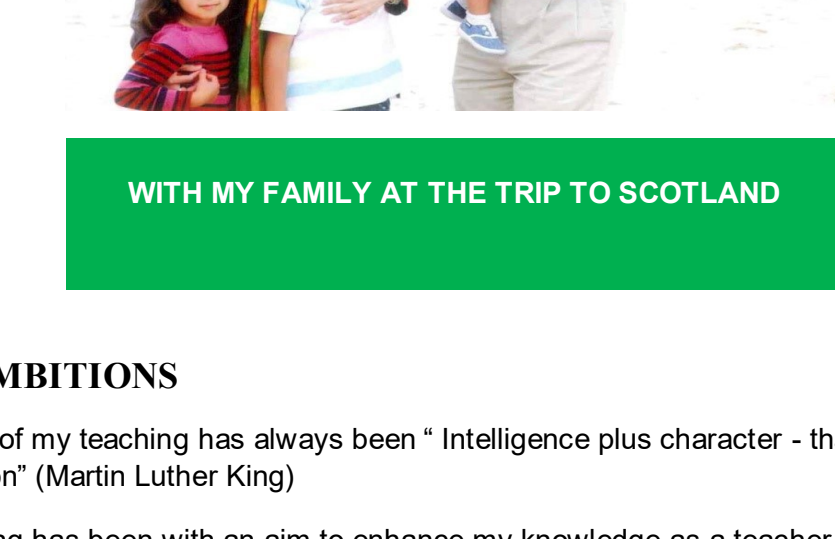
PROFESSIONAL DEVELOPMENT

- Attended several conferences in the US.
  - ⇒ Two day program for improvement of university instruction through Center for Teaching Excellence.
  - ⇒ National Research Initiative Regional Research Conference "Linking Agriculture, Food Systems, Communities, and Population Health"
- Seminar offered by ISU Dietetics Programs for perceptors on working with dietetic interns
- Organized and participated various conferences all over Pakistan.
- Professional affiliation with several educational and medical institutions

TRAVEL EXPERIENCES

Every time I have travelled to any part of the world I have always desired that teaching as a profession should be given the same respect as in other parts of the world. I am fortunate that my commitment and dedication to my work have been rewarded with respect and trust from my students.

- Travelled to many places in Asia, Europe, Far East, and Middle East, USA.
- Favorite area: Northern areas of Pakistan as they are just as beautiful as Switzerland! They belong to us.



WITH MY FAMILY AT THE TRIP TO SCOTLAND

GOALS & AMBITIONS

- The mission of my teaching has always been " Intelligence plus character - that is the goal of true education" (Martin Luther King)
- All my learning has been with an aim to enhance my knowledge as a teacher. Completing the graduate course from ISU in Nutrition Counseling & Education Methods successfully (GPA 4) was an important step towards this goal.

FAVORITE QUOTE/ INSPIRATION IN LIFE

- Success on any major scale requires you to accept responsibility. In the final analysis; one quality that all successful people have is the ability to take on responsibility" (Michael Korda) .

LESSONS LEARNED & KEY MESSAGE FOR AUDIENCE!

- Loss of two brothers at a very young age has been the biggest setbacks in my life. Bouncing back is hard but it is essential to remain steadfast and focused and come out stronger ahead.
- Message to all especially younger members of PNDS is that "Be honest to your profession". "Age is no barrier to learning-learning never ends".