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# Nutrition Education in the Undergraduate Medical Curriculum at the Aga Khan University, Karachi, Pakistan

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## Introduction

Pakistan is a country that is undergoing health transition. As a result it is faced with the double burden of infectious diseases and undernutrition, as well as the non-infectious chronic diseases. Sixty percent of the children under five are malnourished and maternal malnutrition is widespread with 55 to 71% of the population reported to be anemic<sup>1,2</sup>. Nearly 12 million children under the age of 5 years die every year: most of them in developing countries. Malnutrition is often the underlying cause of death in a great majority of these cases<sup>3</sup>. On the other hand, the incidence of chronic diseases such as Type 2 diabetes mellitus and cardio-vascular heart diseases are reported to be on the increase<sup>1</sup>. It is now universally accepted that proper nutrition is essential for the maintenance of health and the prevention and treatment of disease<sup>4,5</sup>. Aronson states that it must be stressed to the medical students that “patient education is now one of their principal tasks and, indeed, our most effective weapon in retarding or aborting the burden of degenerative and neoplastic disease”<sup>6</sup>. With this recognition comes the demand that physicians acquire counselling skills related to diet, nutrition and healthy life styles<sup>7</sup>. Despite the important role nutrition plays in good medical practice, historically it has rarely been considered an integral component of medical education. Recently, however, medical educators have acknowledged the need for nutrition education to be included in the medical school curriculum<sup>8,9</sup>. Studies on the nutrition knowledge of doctors and medical students in Pakistan indicate serious gaps in their nutritional knowledge<sup>10-12</sup>. In 1990, Dr. M. A. Khan, consultant to the Government of Pakistan on Nutrition Education in Pakistan recommended, that the standard of nutrition education in the medical curriculum needed to be improved by substantially increasing the nutrition component of the pediatric curriculum and incorporating the planning of diets for childhood, pregnancy and lactation as well as for different diseases into the community medicine curriculum<sup>9</sup>.

Other countries have also critically examined the place and extent of the nutrition component in under and post-graduate medical curriculum<sup>13,14</sup>. In general there have been two approaches, one has been to integrate nutrition into the traditional curriculum across various disciplines and the other is to have a separate nutrition course at some point in the training program<sup>15</sup>. The major problem in merging nutrition topics across various disciplines is the availability of trained and willing faculty to impart due emphasis on nutrition where relevant. Secondly, it makes the tracking of nutrition course content difficult. On the other hand when a discrete course in nutrition is taught by one interested faculty, it is difficult to obtain long term sustainability for the course because it relies too heavily on the efforts of one individual<sup>16</sup>.

The importance of nutrition education in the medical curriculum was presented at the curriculum review carried out in 1992-93, at the end of the first five years of The Aga Khan University Medical School. As a result it was recognized that the nutrition component in the curriculum needed to be strengthened. Medical educators believe that ideally, nutrition should be taught early in training and reinforced during the clinical years<sup>14</sup>. Thus it was recommended that in addition to the basics of nutrition, which are integrated with the basic health sciences curriculum in the pre-clinical years, a discrete course in nutrition should be offered during the clinical training period. It was decided that the

course in normal and therapeutic nutrition be placed within the Family Medicine Component of the Primary Health Care (PHC) Clerkship, in the fifth year of the five year undergraduate training program.

**This paper describes:**

- (1) the process of establishing the nutrition course at the Aga Khan University undergraduate medical curriculum in the Primary Health Care Clerkship;
- (2) development of a multi-disciplinary core faculty interested in nutrition;
- (3) teaching methodology for the nutrition module.

Establishing a Nutrition Course in the Medical Curriculum The PHC clerkship is a 12-week multi-disciplinary community based clerkship. The disciplines involved are family medicine, community health sciences, community pediatrics and community obstetrics. Two sessions per week of 75 minutes duration each are allocated to the nutrition module as a component of Family Medicine. The overall objectives of the course are for the student to be able to:

1. Demonstrate a working knowledge of basic nutrition concepts related to health promotion, disease prevention and management of disease during the life cycle and various physiological states.
2. Demonstrate skills to assess the nutritional status of an individual using anthropometric, biochemical, clinical and dietary assessment methods (ABCD approach).
3. Demonstrate effective counseling skills in order to motivate patients to make life style changes in diet and activity patterns.
4. Evaluate current beliefs and dietary practices in the community and guide patients to nutritionally sound diets and practices.

**Developing a Faculty Interested in Teaching Nutrition**

This course was first offered during August to October of 1994. The primary responsibility for the design and conduct of the course is with a nutritionist trained in clinical and community aspects of nutrition who has a joint appointment in the Departments of Medicine and the Department of Community Health Sciences. Clinical faculty members from relevant disciplines were invited to participate in the tutorials as co-facilitators, initially to help in integration of nutrition into clinical practice. They were provided with reading materials for their respective topics and objectives for the tutorials were developed in collaboration with respective co-facilitators. This participation increased their interest in the nutritional aspects of the topics under discussion. As the clinical faculty became more comfortable with the nutritional content of the tutorials they took on increasing responsibility for facilitating the discussion. In 1999 while the nutritionist was on sabbatical the course was run entirely by the clinicians in the absence of the nutritionist. Thus we achieved our objective of developing a critical mass of faculty members across the various disciplines that were trained and interested in teaching nutrition. The interest generated by these faculty members also resulted in several additional faculty members offering to act as co-facilitators for specific topics as they felt that this would strengthen their own background in nutrition related to their particular specialty. In addition the cardiology and gastroenterology divisions indicated that they would like their 'fellows' to participate as co-facilitators as this would strengthen their training in the nutritional aspects of their specialties.

**Instructional Strategy**

The sessions are held in groups of 15 to 18 students. They are student led and instructor facilitated. Attendance at all sessions is mandatory and students are evaluated in each session on the criteria of participation, demonstration of knowledge and quality questions raised.

In the course of the six years we have tried three different approaches.

In the first approach each student selected a particular topic and was responsible for presenting the basic principles related to that topic, presenting a case and leading the group discussion on case management.

A suggested reading list for each topic was given to all the students and additional reading materials were made available to each student for their particular topics, if these are not available in the Aga Khan University library.

Our experience with this approach was that the learning in these sessions was very variable depending on the preparation and skills of the student leading the discussion for the day. Discussion with the students also revealed that the class was reluctant to ask questions of the presenter if they felt he/she would be put on the spot if unprepared. Similarly the presenters tried to avoid calling on fellow students who they felt were likely to be unprepared to answer questions on the particular topic. We therefore decided to change strategies so that the students were given 1-2 cases on each topic and were expected to come prepared to discuss the nutritional management and counseling of the given cases. The faculty member was responsible for leading the discussion and managing the group dynamics. Feedback from students indicated that this approach provided a better teaching-learning environment. However, faculty assessment of the caliber of discussion was that some students still came minimally prepared to class, with regards to specific dietary interventions for the given cases. In view of this, currently the students are divided into groups of four and each group is given a specific case and are expected to turn in a written nutritional care plan (NCP) for the assigned cases. These NCP's then form the basis for the class discussion on the particular topic.

The focus of each session was on counseling the patient regarding nutrition for a particular condition or the prevention and/or management of a particular disease and not on the presentation of research findings. The reason for emphasizing the ability to counsel regarding nutrition is based on the fact that most family medicine practitioners as well as physicians in other specialties in Pakistan would be expected to provide the counseling themselves due to the fact that there are only a few dietitians in private practice and due to economic constraints of their patients even if nutritional counseling were available.

As part of the course requirement and evaluation, the students were initially required to submit two assignments:

1. Perform a personal nutritional assessment. Identify strengths and weakness and suggest modifications in dietary practices and lifestyle based on their assessment.
2. Document the nutritional assessment and management (along with a detailed nutrition care plan), as well as suggestions for follow up of a patient they managed in the community. The students suggested that it would be useful if they prepared summary sheets of the patients they managed, which could be attached to the patients' records. This would enable the next batch of students to follow-up on the patients' nutritional management. This suggestion was incorporated into the requirement.
3. During the first few rotations it became very obvious that our students had little or no knowledge of food availability and prices in the community. Therefore a third assignment was added in which the class was to do a market survey to identify low cost food sources for various nutrients and learn about seasonal availability as well as local names of foods consumed in the communities.

The end-of-term OSCE (objective structured clinical examination) also includes at least one out of 10 questions on nutrition and an effort is made to incorporate the nutritional aspect in the other questions where relevant. In addition nutrition related questions are part of the final professional examinations in medicine, family medicine, pediatrics and obstetrics.

## **Discussion**

Student response to the course has been very favorable. Informal review sessions held at the end of each rotation indicates that more than 90% of the students felt that the course would be very useful in their future clinical practice. Some students who were planning to specialize in disciplines like neurosurgery, or psychiatry said that although they did not think they would use the knowledge gained in the rotation in their clinical work, they still would recommend the course for all medical students since prior to the course they had little appreciation of the role of nutrition in health promotion and disease prevention. Still others related how they had made changes in their own life styles or

encouraged others to make life style changes as a result of the knowledge gained in this course. Some quotes from students regarding the nutritional self-assessment exercise and/ or the course:

“During the course of the assignment I have had to re-think my entire life style and eating habits... a lot of challenges lie ahead.. maybe I could take this as a challenge for the next millennium!!”

“This exercise did prove really useful to me and I have realized the possible room for improvement in my nutritional status, without even getting professional help but then, I am the professional help that people will be turning to for help. So I realize I need to make myself a role model”

“My family history is typical of heart disease running rampant; thanks to this course I have managed to increase my family’s awareness of the role of nutrition and my mother has incorporated the necessary changes into the family dining trends.”

“I used to think that all this diet stuff is for the oldies, now I realize that if I want to feel young when I am 50+ years, I better start watching my diet and exercise now.”

“Evaluating my own dietary practices gave me an insight into why patients follow the dietary patterns they do and the emphasis on counselling patients throughout the course made me realize that it is not enough to know the facts; as physicians we need to be able to motivate patients to change their life styles.”

“This course made me realize that good nutrition is not about living longer but being healthy for as long as one lives”.

## Conclusion

Our experience over the past six years has shown that it is possible to build up a robust interest in nutrition amongst both students and faculty even with only one trained nutritionist when other faculty members are trained over time in the nutritional aspects of their own specialties. Thus it would be possible over time for all the medical colleges in the country to incorporate nutrition education in the medical curriculum even if they have only the part-time services of a trained nutritionist who could work with the medical faculty to develop a core faculty with an interest in nutrition.

We also learnt that it was not possible for all the necessary nutrition material to be ‘taught’. The intent of this course, as stated by Weinsier<sup>17,18</sup> is to sensitize the students and make them aware of the importance of nutrition so that they continue to enhance their nutrition knowledge and skills and to apply them through out their careers.

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