

# A Study of Prescription Pattern of Nutraceuticals, Knowledge of the Patients and Cost in a Tertiary Care Hospital

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## ABSTRACT

**Introduction:** Nutraceuticals are increasingly becoming a part of diet in a health-conscious society. People have changed their outlook towards nutraceuticals because of varying lifestyle diseases and they see the need to improve their physical and mental health.

**Aim:** To study the prescription pattern by doctors, knowledge of patients, cost for patients and patient satisfaction regarding nutraceuticals.

**Materials and Methods:** Total of 120 patients were included in the study after obtaining written informed consent. The patients were interviewed and the prescriptions and bills were scrutinized. The data was gathered based on a structured pretested questionnaire comprising of socio-demographic variables, their knowledge of nutraceuticals and history of regular usage, reason for their use, total cost for a month on nutraceuticals alone. The data was analysed using tests of proportions and percentages.

**Results:** Vitamins were prescribed maximum in Internal Medicine (51%), Orthopaedics (43%) and Surgery (37%).

Minerals were prescribed maximum in Obstetrics and Gynaecology (30%). 66% of the patients were aware about nutraceuticals. The awareness was maximum in medicine department (70%) and least in surgery department (63.3%). The study showed that the average amount that the patients spent was Rs 357.45 per month on nutraceuticals alone, maximum was Rs 557 in orthopaedics and minimum was Rs 219 in medicine respectively. A 61.6% of the patients expressed their satisfaction after taking the nutraceuticals. However, 12.45% of the patients were dissatisfied even after taking the nutraceuticals.

**Conclusion:** Nutraceuticals are being increasingly perceived as beneficial to health and are being continuously used in the treatment of various diseases. Therefore, it is imperative that a doctor educates the public and creates an awareness of the required amount of nutraceuticals that can be safely used. The future of nutraceuticals is bright and can transform healthcare in a developing country like India which utilizes a large number of natural compounds.

**Keywords:** Dietary supplements, Health, Patient awareness and satisfaction

## INTRODUCTION

The term 'Nutraceuticals' has been defined as any substance that may be considered a food or a part of food and provides medical and health benefits including the prevention and treatment of disease [1]. People all over the world are frustrated with the expensive, hi-tech, disease treatment approach prominent in modern medicine, so the consumer is seeking alternative beneficial products and care which makes nutraceuticals particularly appealing [2]. The knowledge on the effect of diet on human health has increased among the population across and thus the consciousness towards healthy diet has raised. There are different types of products belonging to the class of nutraceuticals namely dietary supplements which are products that contain nutrients derived from food products. They include metabolites, vitamins, minerals and amino acids, herbal products like ginseng, ginkgo-biloba, St. Johns wort and functional foods like oats, bran, husk, lignin's, prebiotics and probiotics. The major nutraceutical ingredients are anti-oxidants, nutritional lipids and oils, phytochemicals, minerals, vitamins and proteins.

Consumers are becoming more aware due to the role played by education and the media. People have come to know about the health promoting effects of food and the various properties of food. Increasing economic prosperity and health awareness is driving more consumers to take a proactive role in managing their health [3]. Many individuals suffering from ischaemic heart disease, obesity, diabetes mellitus type II, malignancies, osteoporosis and neurological diseases such as Parkinson's and Alzheimer's diseases have been benefited by nutraceuticals. Nutraceuticals' role in many biological processes gives us ample

evidence that they have protective action against various diseases [4]. Nutraceuticals will play an important therapeutic role in the near future and its success will be determined by how effective they are with minimum or no side-effects [5].

According to WHO, 50% of hospitalised patients worldwide have malnutrition which by itself increases the risk of mortality and morbidity [6]. The reason can be lack of knowledge, unavailability of nutraceuticals, financial constraint, patient behaviour and beliefs. The present study was an attempt to know how much importance a doctor gives to include one or the other nutraceuticals in his/her prescription to a patient with the intention to help the patient improve his/her health status, while not necessarily targeting the disease.

## AIM

The present study was taken up with the objectives of studying the prescription pattern by doctors, knowledge of the patients, cost for patients and patient satisfaction regarding nutraceuticals.

## MATERIALS AND METHODS

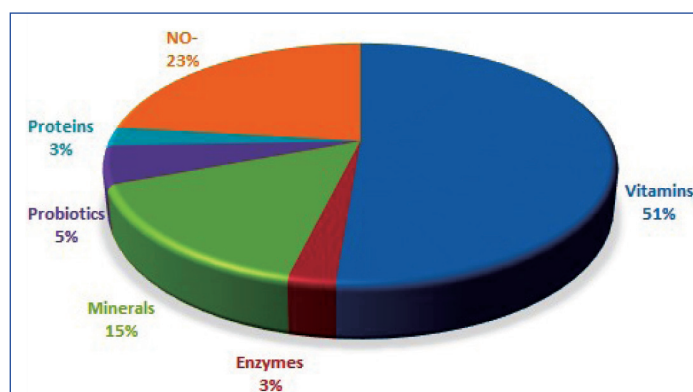
This was an observational cross-sectional study conducted on patients admitted to the wards in 4 departments at Vydehi Institute of Medical Sciences and Research Centre namely General Medicine, General Surgery, Orthopaedics and Obstetrics and Gynaecology over a period of 4 months from September 2014 to December 2014. The study was conducted after obtaining clearance from the Vydehi Institute of Medical Sciences & Research Centre Institutional Ethics Committee and is in accordance with the Declaration of Helsinki.

In each of the four departments 30 patients were enrolled in the study. The patients included in the study were in-patients of the four wards, of adult age group and patients who consented to participate in the study. The study was conducted after obtaining written, informed and understood consent from the patients. Patients also consented for the data to be published and reported. Paediatric patients and severely ill patients were excluded from the study.

The patients were interviewed and the prescriptions and bills were scrutinized. The data was gathered based on a structured pretested questionnaire comprising of socio-demographic variables, their knowledge of nutraceuticals and history of regular usage, reason for their use, total cost that patients incurred for each month on nutraceuticals alone. The data was entered into EXCEL sheet and analysed based on percentages and proportions.

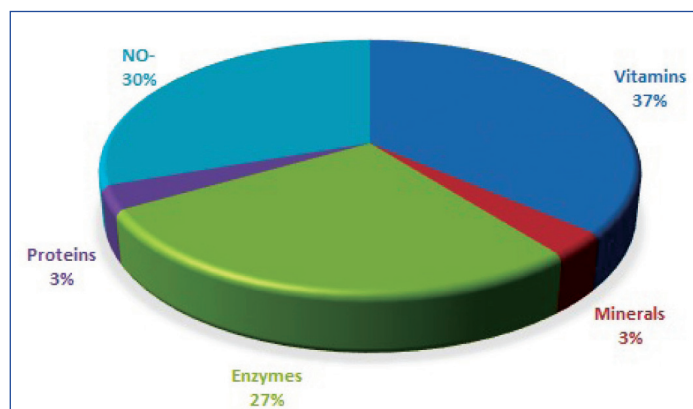
## RESULTS

As depicted in [Table/Fig-1], 77% of prescriptions in the Department of Medicine contained nutraceuticals of one or the other types highest being vitamins (51%). However, nutraceuticals were not prescribed in 23% of prescriptions.



[Table/Fig-1]: Nutraceuticals prescribed in Medicine Department.

In surgery department, 70% of prescriptions contained nutraceuticals and again highest was of vitamins (37%). 30% of the prescriptions did not contain any nutraceuticals as depicted in [Table/Fig-2].

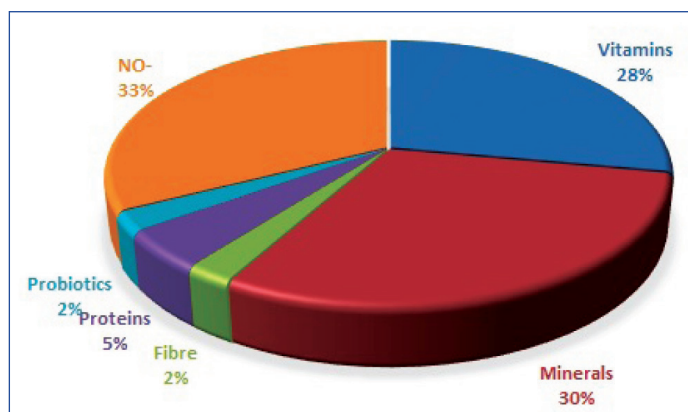


[Table/Fig-2]: Nutraceuticals prescribed in Surgery Department.

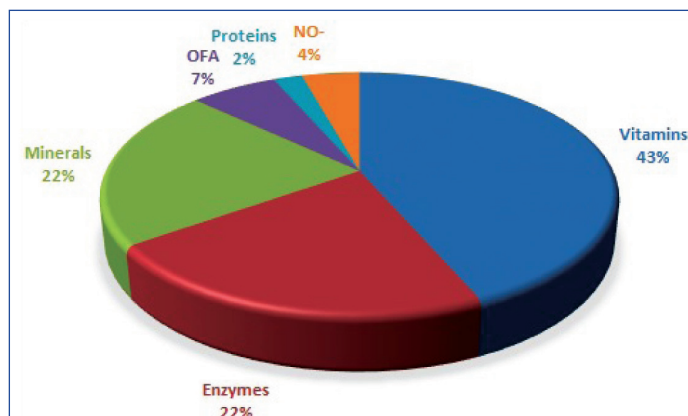
[Table/Fig-3] shows that in Department of Obstetrics and Gynaecology, 67% of prescriptions contained nutraceuticals of which minerals formed the highest group (30%). A 33% of prescriptions did not contain any nutraceuticals as depicted in [Table/Fig-3].

In Department of Orthopaedics, 96% of prescriptions contained nutraceuticals of which vitamins were the highest group (43%). 4% of prescriptions did not contain any nutraceuticals as depicted in [Table/Fig-4].

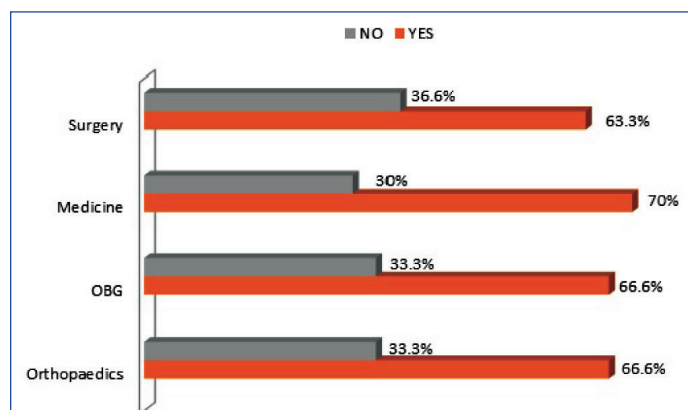
[Table/Fig-5] shows that 66% of the patients were aware about nutraceuticals and 34% of the patients were not aware about



[Table/Fig-3]: Nutraceuticals prescribed in Obstetrics and Gynaecology Department.



[Table/Fig-4]: Nutraceuticals prescribed in Orthopaedics Department.



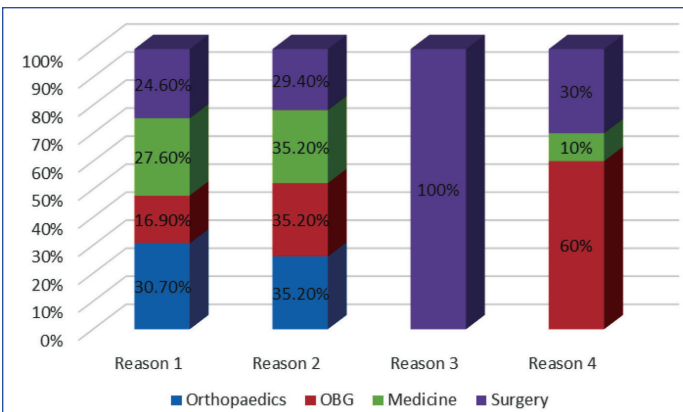
[Table/Fig-5]: Knowledge of patients.

the nutraceuticals. The awareness was maximum in medicine department (70%) and least in surgery department (63.3%).

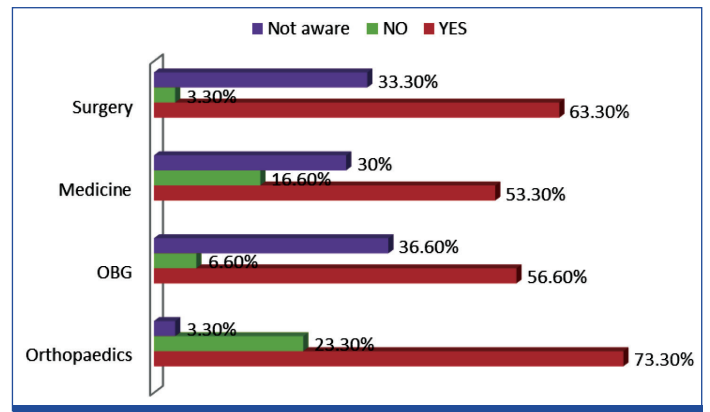
In this study, 30.7% of Orthopaedics patients, 16.9% of OBG patients, 27.6% of Medicine patients and 24.6% of Surgery patients thought that nutraceuticals were prescribed for treatment for their illness [Table/Fig-6].

35.2% of Orthopaedics patients, 35.2% of OBG patients, 35.2% of Medicine patients and 29.4% of Surgery patients thought that nutraceuticals were prescribed to improve body function [Table/Fig-6]. 100% of Surgery patients believed that nutraceuticals were prescribed to improve mental performance [Table/Fig-6]. 60% of OBG patients, 10% of Medicine patients and 30% of Surgery patients believed that nutraceuticals were prescribed for general well-being [Table/Fig-6]. None of the patients believed that nutraceuticals were prescribed to reduce body weight or for preventing long term chronic illness [Table/Fig-6].

The present study showed that the average amount that the patients spent on nutraceuticals was Rs 357.45 per month,



**[Table/Fig-6]:** Reasons for using nutraceuticals.  
Reason 1-as a treatment for any illness  
Reason 2- to improve body function  
Reason 3-to improve mental status  
Reason 4-for general well being  
Reason 5-to reduce body weight  
Reason 6-because it prevents long term chronic illness



**[Table/Fig-9]:** Patient satisfaction on consuming nutraceuticals.

## DISCUSSION

In a study conducted by Environics, which was commissioned by Agriculture and Agrifood Canada (AAFC), they intended to determine the attitudes and recommendation behaviours of Canadian physicians and nurses towards functional foods and nutraceuticals and the factors that influenced these, identify products or product categories considered most important, assess the level of knowledge about functional foods and nutraceuticals as well as opinions about their safety, identify sources of information about functional foods and nutraceuticals that are used and considered important. They concluded that Physicians and Nurses believed in the benefits, certain foods can have for our health beyond just basic nutrition [7].

Patients are also increasingly becoming aware about the fact that the lack of nutraceuticals in their diet is responsible for various disorders. Therefore, the role of prescription of nutraceuticals is becoming more important because patients know that nutraceuticals will definitely aid in the treatment of their ailments. In a country like India, where there is rich resources for the production of nutraceuticals, there is scope for new formulations and products [3]. The doctors too are aware of the beneficial effects of nutraceuticals and therefore in our study, there was a rise in the prescription pattern of nutraceuticals in all the four departments, highest being orthopaedics in which 96% of prescriptions contained nutraceuticals and lowest being obstetrics and gynaecology in which 67% of prescriptions contained nutraceuticals.

Nutraceuticals are being increasingly perceived to have a role in diet of a population. This is because individuals are becoming more health conscious. Therefore, nutraceuticals are becoming influential in the healthcare sector because patients want healthier and nutritious products for consumption. They have readily been accepted as a part of a balanced diet [8].

In a study conducted by Abdullah and Waquar, majority of the patients utilized nutraceuticals for the purpose of improving their mental performance, improving body function and for general well-being [9]. In our study, nutraceuticals were mainly perceived by patients as drugs which help in the treatment of their illness, improve body function and useful for general well-being.

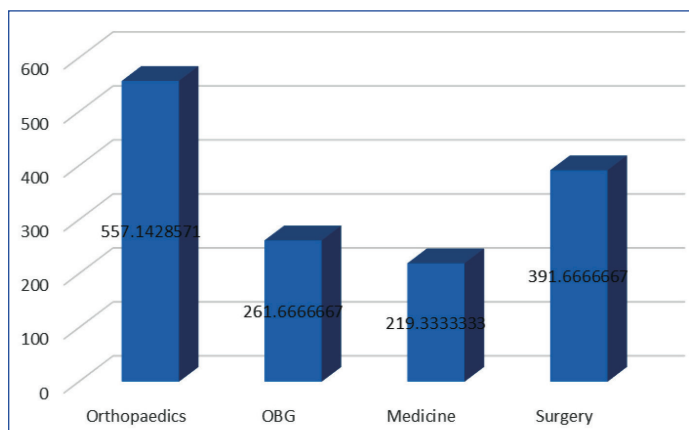
The Indian nutraceutical market was expected to be estimated at \$5 billion in 2015 [10]. India is surely but slowly climbing up the ladder of the global nutraceutical industry. More importantly, patients in this part of the world see the need to spend a portion of their financial income on nutraceutical products. So, the consumer demand only increases in such a condition where food has to be supplemented with products such as nutraceuticals to prevent many diseases. In our study, patients spent a maximum of Rs 557.00 in Orthopaedics and a minimum of Rs 219.00 in Medicine department.

Nutraceuticals are providing a new initiative in drug therapy. Therefore, scientific assessment protocols have to be setup

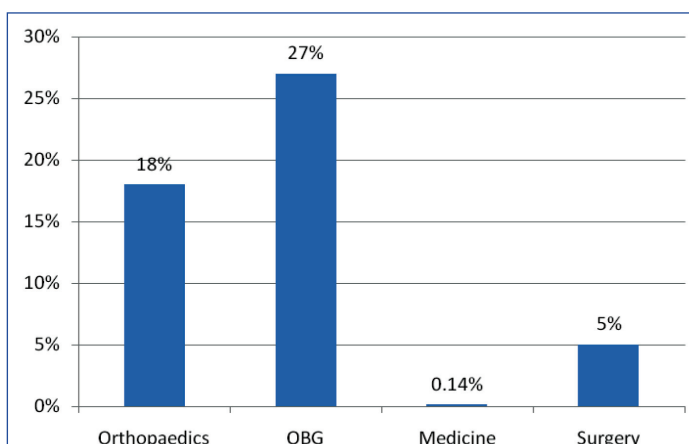
maximum was Rs 557.00 in Orthopaedics and minimum was Rs 219.00 in Medicine Department respectively [Table/Fig-7].

This study showed that the average percentage of costs spent on nutraceuticals alone compared to the total prescribed drugs was 18% in Orthopaedics, 27% in Obstetrics and Gynaecology and 5% in Surgery. In the department of Medicine, it was only 0.14% [Table/Fig-8].

In this study, 61.6% of the patients expressed their satisfaction after taking the nutraceuticals and 12.45% of the patients were dissatisfied after taking the nutraceuticals. A 25.8% of patients were not even aware about nutraceuticals [Table/Fig-9].



**[Table/Fig-7]:** Cost of nutraceuticals prescribed department wise.



**[Table/Fig-8]:** Average percentage of costs on nutraceuticals compared to total prescribed drugs.

to ensure prevention of diseases. These protocols need to be reassessed by clinical trials. Research in nutraceuticals cannot stop at that stage, it has to be delivered to the markets so that patients can utilize it for their benefit [11].

## CONCLUSION

Nutraceuticals are being increasingly perceived as beneficial to health and are being continuously used in the treatment of various diseases. Therefore, it is imperative that a doctor educates the public and creates an awareness of the required amount of nutraceuticals that can be safely used. The future of nutraceuticals is bright and can transform healthcare in a developing country like India which utilizes a large number of natural compounds. More studies need to be taken up on prescription of nutraceuticals in healthcare.

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