



RESEARCH ARTICLE

NURSES' KNOWLEDGE AND AWARENESS ON FUNCTIONAL FOODS

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ABSTRACT

Functional foods and nutraceuticals may represent a novel therapeutic approach to prevent or attenuate diet-related disease. Nurses often fill the role of nutrition counselors of the patients. Therefore, the purpose of this study was to investigate the relationship between nurse's knowledge and attitudes about functional foods and their recommendation, intentions toward functional foods. Ex Post Facto design was used to collect information from 50 nurses using a questionnaire. The questionnaire was designed to explore the consumption, awareness and perceived risk factors related to functional foods among nurses. Results indicate that majority (80%) of the nurses were aware of the term 'functional foods', while they had moderate knowledge on functional foods as nearly half of them consumed functional foods on a daily basis and actively seek information about functional foods. The bioactive ingredients considered most effective at improving their health were omega-3 fatty acids (42%) and dietary fibers (40%). Health areas nurses were concerned about were primarily reported as diabetes (62%), heart disease (52%) and followed by hypertension (44%) and immunity (42%). Predominately participants reported that they have confidence on foods functional foods. Nurses' attitudes towards the safety and the efficiency of functional foods could influence their attitudes on whether or not to recommend these foods to the patients

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INTRODUCTION

The incidence are Non-Communicable Diseases (NCD) is progressively increasing due to unhealthy dietary habits and a sedentary lifestyle. By and large most are considered preventable or could be minimized by a proper diet and physical activity, weight management, and a healthier lifestyle. Additionally, people can optimize the health-promoting capabilities of their diet by way of supplementation and by consuming foods that have been formulated or fortified to include health-promoting factors. Diet can have beneficial physiological and psychological effects, beyond well-known nutritional effects, by modulating specific target functions in the body. Therefore, diet not only helps to achieve optimal development and health, but it may promote better health and play an important role in disease prevention by reducing the risk of certain chronic diseases. Scientists also began to identify physiologically active components in foods from both plants and animals (known as phytochemicals and zoochemicals, respectively) that potentially could reduce risk for a variety of chronic diseases (Hasler, 2002). Food is regarded "functional" if consumed as part of a usual diet, providing benefits to one or more target functions in body, beyond basic inherent nutrition (Maurice and Jo, 2008). Functional foods and nutraceuticals may represent a novel therapeutic approach to prevent or attenuate diet-related disease (Magrone *et al.*, 2013). In a 1999 position paper, the American Dietetic Association defined functional foods as foods that are "whole, fortified, enriched, or enhanced," but more importantly, states that such foods must be consumed as "... part of a varied diet on a regular basis, at effective levels " for consumers to reap their potential health benefits (ADA, 1999). The term functional food is a food product that, in addition to its basic nutritional value, contains nutrients or other substances that prevent or reduce the risk of a diet-related disease or enhances a certain

physiological function (IOM/NAS, 1994). A substantial amount of health care resources could be saved by expanding health promotion and disease prevention programs. To effectively reduce health care costs, the emphasis and delivery of health care must promote health as well as deliver treatment and rehabilitative services to the patients. Health promotion and disease prevention need to be integral parts of all health care, community, public health, and worksite programs across the life cycle. Healthcare practitioners should understand functional foods because they are the ones who have primary responsibility for medical nutrition therapy (ADA, 1998).

Changing eating habits is very difficult and support is needed from health professionals who should develop individual therapeutic programmes for each patient according to his/her lifestyle requirements and tastes. In order to increase adherence every minimal success should be stressed to increase motivation and compliance with treatment (Katz, 2002). However, although much research has examined general consumer perceptions of functional foods (Lee *et al.*, 2000 and De Jong *et al.*, 2004), and dieticians' responses to functional foods (Myeong *et al.*, 2010). Nurses often fill the role of nutrition counselors as they spend most of their time in the bedside of the patients. Nurses receive a little extensive education about nutrition, but there are great opportunities for nurses in nutrition, both as educators and researchers, but little is known about nurse's responses to functional foods. Therefore, the purpose of this study was to investigate the relationship between nurse's knowledge and attitudes about functional foods and their recommendation intentions toward functional foods.

Objectives of the Study

The specific objectives of this research were to examine the following

1. Awareness of functional foods among nurses
2. Current consumption patterns of functional foods and current sources of information and perceived need and sources for further information about functional foods among nurses.

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3. Identification of currently consumed and preferred food and bioactive ingredients for functional foods among nurses.
4. Health areas addressed through functional food consumption among nurses.
5. Perceived risks related to the consumption of functional foods among nurses.

MATERIALS AND METHODS

Sampling Procedure

Ex Post Facto design was used to collect information from 50 nurses using a questionnaire. All the nurses were working in Bagwan Mahaveer Jain Hospital, Vasanth Nagar, Bangalore and were selected using purposive sampling. The questionnaire was administered to all the participants to elicit information on awareness, attitude and knowledge of functional foods.

Tool used for the study

The questionnaire was designed to exploration of the consumption, awareness, understanding and motivating factors related to functional foods among nurses. Both quantitative and qualitative data was collected using a combination of open- and close-ended questions. To ensure that the participant understood and answered each question fully, the study questionnaire was administered by a researcher using an interactive process. Throughout this process, to increase the participant's awareness and understanding of key concepts related to functional foods, information sheets were presented to describe and establish relevant definitions including functional foods.

Data Analysis

The data was analyzed using SPSS version 17 Chicago inc. to generate frequency table and percentages.

RESULTS

Demographic Characteristics

All the nurses participated in the study were females. Majority were Indian citizen, belonging to a nuclear family. About 38 percent of nurses were from middle – middle income groups followed by 30 percent from low-middle income group.

Awareness and Consumption of Functional Foods

Table 1 indicates that prior to being presented with a functional food definition, 80 percent of participants reported that they were aware of the term "functional food." When asked how they would define a functional food, participants most frequently articulated that functional foods are foods that contribute to health and healthy body function. After being presented with a functional food definition, 46 % of participants indicated that they currently consume functional foods, with 34% of these participants consuming functional foods on a daily basis. Functional foods were most likely to be consumed at breakfast (46%), followed by lunch (10%), snacks (6%) and dinner (38%). Consumption frequency could have a significant positive effect on the intention to recommend functional foods.

Knowledge and Information about Functional Foods

Table 2 presents the data related to awareness and knowledge, over half of participants (68%) reported that they actively seek out information about functional foods with the most common source of information being dietician (46%), newspapers, magazines and books (44%), food label (40%). Among them 82% of participants indicated they needed further information about functional foods.

Food Matrices and Bioactive Ingredients as They Relate to Functional Foods

The top three functional food matrices participants in this study reported that they currently consume were cereals (70%), bread

(60%) and egg (40%), while less than 30 percent consume other functional foods listed. The top three functional food matrices participants in the study reported that they currently consider as functional foods were Cheese (42%), margarine (42%), and beverages (40%), while less than 40 percent considered other functional foods as food matrices.

Bioactive Ingredients Relate To Functional Foods

Table 3 indicates the bioactive ingredients participants considered most effective at improving their health were omega-3 fatty acids (42%) and dietary fibers (40%), followed by antioxidants (28%) and plant sterols (20%). The bioactive ingredients currently consumed as functional foods are antioxidant (66 %). Dietary fibre is consumed highly by the participants (94%), followed by omega-3 fatty acids, plant sterol (12%), prebiotics (10%). The bioactive ingredients currently considered as functional foods are antioxidants (36%), followed by dietary fibre (32%), omega-3 fatty acids (52%), plant sterols (54%), prebiotics (50%), and probiotics (38%).

Human Health As It Relates To Functional Foods

Table 4 presents knowledge of nurses on human health as it's related to functional foods. Participants predominately reported that they are very interested in their overall health (82%). Health areas participants were concerned about were primarily diabetes (62%), heart disease (52%) and followed by hypertension (44%) and immunity (42%).

Perceived Risks As They Relate To Functional Foods

Table 5 indicates that participants predominately reported that they have confidence on foods functional foods (78%), 58% of the participants feel there is risk involved in the consumption of functional foods, participants have experienced a negative/unpleasant/ adverse reaction to consumption of functional foods (42%), and participants worry about functional foods interacting with their medicines (42%).

DISCUSSION

Nurses in the present study had moderate knowledge of the health-care professionals' perceptions of functional foods. Consumption/purchase of functional foods was related to beliefs in the effects of the products, having consumed nutraceuticals or dietary supplements, having a diet-related problem personally or in the family, and a high level of education (Landström 2008). The nurses' reasons for not recommending the products were limited knowledge about the products and their physiological effects and lack of trust in the logotype. Health-care professionals must therefore keep up to date with scientific research, even nutrition science. The appropriate application of functional foods could enhance patients' physiological functioning and possibly decrease their use of pharmaceuticals and, thereby, decrease the medical costs. In many studies, the risks and concerns about the use of functional foods have been highlighted (Frewer *et al.*, 2003 and Backstrom, 2003). The Nurses seem to be aware that using of functional foods may have risks, but the possible risks do not affect the behavioral tendency, i.e., the evaluated intention to recommend functional foods. This finding agrees with the results in, where risk issues did not affect the willingness to use functional foods (Urala and Lähteenmäki, 2004). A plethora of "functional" bars, beverages, cereals and soups are being enhanced with botanicals, some of which may pose a risk to certain consumers. Although there is evidence that certain functional foods or food ingredients can play a role in disease prevention and health promotion, safety considerations should be paramount. Safety concerns have recently been raised, particularly with regard to the seemingly indiscriminate addition of botanicals to foods (Hasler 2002).

Table 2. Knowledge and information about functional foods

Particulars	Yes		
	Frequency	Percent	
Actively seeking out information about functional foods	34	68	
Source of information	Physician	15	30
	Dietician	23	46
	Nurse	8	16
	Pharmacist	2	4
	Family of friends	14	28
	Food label	20	40
	Newspapers, Magazines and/or Books	22	44
	Television or radio	19	38
	Internet	9	18
	Others	1	2
Do you feel you need more information about functional foods?	41	82	
Three food forms that you currently consume as functional foods	Beverages	18	36
	Breads	30	60
	Cereals	35	70
	Cheese	10	20
	Crackers and Cookies	16	32
	Egg	20	40
	Margarine	5	10
	Pasta	7	14
	Salad dressing	9	18
	Yoghurt	8	16
Three food forms that you currently consider as functional foods	Others	5	10
	Beverages	20	40
	Breads	19	38
	Cereals	19	38
	Cheese	21	42
	Crackers and Cookies	13	26
	Egg	15	30
	Margarine	21	42
	Pasta	22	44
	Salad dressing	12	24
Yoghurt	15	30	
Others	1	2	

Table 3. Knowledge on bioactive ingredients relate to functional foods

Particulars	Frequent	Percent	
Which bioactive ingredients do you think are most effective in improving your health?	Antioxidants	14	28
	Dietary fiber	20	40
	Omega-3 fatty acid	21	42
	Plant sterols	10	20
	Prebiotics	2	4
	Probiotics	1	2
	others	-	-
Top three bioactives that are currently consume in functional foods.	Antioxidants	33	66
	Dietary fiber	47	94
	Omega-3 fatty acids	43	86
	Plant sterols	6	12
	Prebiotics	5	10
	Probiotics	-	-
	Others	-	-

Table 4. Awareness on human health as it relates to functional foods

Diseases which can be alleviated by consuming functional foods	Percent	Percent
Arthritis	11	22
Cancer	17	34
Bowel health	14	28
Diabetes	31	62
Heart Disease	26	52
Eye Health	12	24
Hypertension	22	44
Immunity	21	42
Bone Health	18	36

Table 5. Perceived risks as they relate to functional foods

Particulars	Frequency	Percent	
Do you have confidence that functional foods are safe?	No	11	22
	Yes	39	78
Would you feel there is risk involved in the consumption of functional foods?	No	21	42
	Yes	29	58
Have you experienced a negative/unpleasant/ adverse reaction to consumption of a functional food?	No	29	58
	Yes	21	42
Do you worry about functional foods interacting with the medicines?	No	29	58

Conclusion

Health-care professionals are not solely professionals; they are also consumers with disparate attitudes to and beliefs in foods and in functional foods. Their attitudes towards the safety and the efficiency of functional foods could influence their attitudes on whether or not to recommend these foods to the patients (de Jong, 2004). As many consumers struggle to achieve a healthful diet, manage their weight, and consume adequate amounts of key nutrients, reinforcement of educational messages regarding food and their health benefits can be effective to increase awareness. When patients are provided with key pieces of information by the health care provider, including information like food component, corresponding food sources, and associated health benefit, there could be significant increase in their awareness towards functional foods. Health professionals, educators, and communicators are wise to keep pace with the latest science and consumer understanding of functional foods and encourage conversations about these foods with their clients, patients, and colleagues. Scientific knowledge on functional foods must be provided through continuing education as well as research and opportunities to interact with their clients through research on functional foods (ADA, 2011).

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