



## Assessment of the Dietitian Experts' Role in Khartoum State Hospitals-Sudan

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### Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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### ABSTRACT

**Background:** Nutrition is a major lifestyle factor in health promotion, prevention and treatment of several population health issues [1]. There are some published studies that show the benefits associated with nutrition interventions provided by dietitians but there is still a need for studies that go beyond the intervention approach to explore these roles teams [2]. In this study out of a total of 227 dietitians in Khartoum state government hospitals, only 42 participated in the electronic questionnaire. The majority (31.0%) of these dietitians were aged between 40-49 years with 93.10% experienced between 6-10 years, Also, most of them (52.4%) have post-graduate studies and have a good awareness of their field of specialization. However, they pointed out that there are some obstacles to work, such as working components (31.1%).

**Objectives:** The main objective of this study was to assess the dietitian experts' role in Khartoum hospital state, The specific objectives was to assess the dietitians role, services provided, dietitian knowledge in Khartoum hospitals state, to assess the level of performance of dietitian experts and their specializations, and whether there are any impediments to doing so.

**Study design (method used):** The researcher(s) adopted a cross-sectional descriptive analytical study. An online electronic questionnaire was sent to a dietitians in government hospitals in Khartoum state in the period from September 18 to October 18, 2021, as a data collection tool to identify the participants' socio-demographic characteristics, services provided, and Knowledge assessment After the approval of the head of the department at the Ministry of Health, the

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electronic questionnaire was sent to the dietitians in hospitals through Google, then the data was analyzed using the SPSS program and placed in the tables.

**Sampling:** The questionnaire targeted all dietitians experts in government hospitals in Khartoum state (227) but the number that completed the questionnaire was 42.

**Problem Statement:** There are not many studies that explain the role and importance of dietitian in hospitals and some performance problems, so I wanted to shed light on these aspects.

**Hypotheses:** Due to my work for several years in Khartoum state hospitals, I expect that the nutritionist will have the scientific information that would enable them to perform, but they lack the possibility of having work tools to help that.

**Setting:** The research was conducted in the state of Khartoum, which is the capital of Sudan and inhabited by about 8 million people, representing the various cultures and races in Sudan. The nutrition departments are affiliated to the Hospital Administration at the Ministry of Health, which has close to 54 of government hospitals, which providing service for 24 hours, including general and specialized hospitals [3,4].

**Participants:** The number of dietitians in government hospitals was approximately 227, and only 42 of them participated in completing the questionnaire.

*Keywords: Nutritional levels; public health; nutritionist sports; nutritionist; dietetic; biological; physiological.*

## 1. INTRODUCTION

Dietitians play a key role in public health, as they promote a healthy lifestyle through better nutrition. The focus of their skills and competences lies in interpreting and communicating theoretical knowledge to enable individuals and groups, across the life-course, to make appropriate dietary choices and sustain healthy lifestyles [5,6]. Dietitians screen, assess, plan and implement programs to enhance the impact of food and nutrition on human health. They may conduct research, assessments and education to improve nutritional levels among individuals and communities. There are many Examples of occupations classification of Clinical dietitian, that's like Food service dietitian, Nutritionist, Public health nutritionist, Sports nutritionist , which requires formal training at a higher educational institution in food and nutritional science, nutrition education, dietetics, or a related field [7]. Dietetics as a profession has been defined by the American Dietetic Association as the integration and application of principles derived from the disciplines of food, nutrition, management, communication, biological, physiological, behavioral and social sciences to achieve and maintain human health [8]. There are negative and positive effects of nutritional education and its practice, such as the application of diets [9], Dietitians oversee the preparation and provision of food, develop modified meals, participate in research, and teach individuals and groups good eating habits [10]. The goal of dietitians is to provide medical nutrition therapy, access to food, prepare food

safely and its provision, and provide guidance on food taste and nutritionally beneficial foods to patients, groups, and communities. Dietary modifications to deal with medical affairs, including diets, are among the main tasks of dietetics (which is concerned with the study of nutrition and its relationship to health). For example, a dietitian, working with physicians and other health care providers, can provide the special artificial nutritional needs of patients who are unable to eat normally. Professional dietitians can also provide specialized services for example in diabetes, obesity, oncology, osteoporosis, pediatrics, kidney disease and micronutrient research [11].

## 2. METHODS AND METHODOLOGY

**Community Nutrition in Developing Countries:** Improving community nutrition in developing countries requires a detailed epidemiological picture of the prevalent nutritional problems in different regions and age groups. This makes it possible to identify priorities, sensitize policy-makers, establish political commitment and design appropriate community programs for income generation and education for the best use of food resources. Experiences acquired from community-based nutritional programs show that ownership of a program by the community and using a tailor-made approach are essential factors in the successful implementation of programs. A multifaceted approach is needed, involving a range of sectors—agriculture, commerce, education and health— and commitment at all

levels from the government to communities and individuals [12].

**Dietetics in Africa:** The actual shape of hospital dietetics in this continent can be depicted from a survey conducted by Calabro, who surveyed 61 counties including Gambia, Malawi, Nigeria and Sudan , The results revealed that professional associations, credentialing-requirements and a code of ethics did not exist in most countries and that 60% did not have academic programs for dietetics. Clinical dietetics was the most frequently selected area of practice, teaching was the second most common and food services the third most common. The author concluded that, with only a few dietitians in each country, the profession badly needed to be developed [3]. Dietitians in Primary Health Care It has been established that dietitians play a key role as members of primary health care teams [14].

**Hospital Kitchen:** At the main kitchen, food and drink are stored specially for patients under examination/treatment when regular food service is in progress and for patients with poor appetite/special food, etc. Ice cubes from a contaminated ice machine can be a source of infection in the environment [15]. There are some studies similar to this study reported that A comprehensive, systematic approach to managing nutrition from admission through discharge and beyond is needed to consistently improve the quality of care, The risk always exists that nutrition goals achieved in the inpatient setting may be lost if the continuity of

care is not adequately addressed at the time of discharge, In practice, patients and family members/caregivers are rarely educated adequately on nutrition care by the hospital team, Moreover, patient adherence to nutrition orders during and following a hospital stay is often poor, and not all physicians are familiar with the proper elements of a discharge nutrition care plan. Failing to address these challenges could result in nutrition care shortcomings at one of the most vulnerable stages in a patient's recovery [16,17].

### 3. RESULTS AND DISCUSSION

The Table 1 contains the demographic characteristics of the respondents of 42 enrollees (97.6%) women , This is probably because the specialization in this field has been limited to women in Ahfad University for women only since 1966 [18]. And then the specialization was introduced in other universities, as the ages of the participants in the questionnaire ranged from <30 years to > 50, most of them ranged 40 to 49 years old (31.0%) Which should have accumulated experience, which appears in the post-graduate study of the participants (52.4%) and (31.1%) have experiences between 6 to 10 years in the field of nutrition, and among them there are very few who are not specialized in therapeutic nutrition (2.4 %), such as food technology. There are also some (47.6 %) who specialize in other areas of nutrition; however, majority who participated in the current survey worked in public hospitals (52.4 %). specializing in some diseases.

**Table 1. Characteristic of the participants**

Characteristic {N=42}	variables	Frequency	Percent age %	Valid Percent	Cumulative Percent
Participants gender	female	41	97.6	97.6	97.6
	male	1	2.4	2.4	100.0
Total		42	100.0	100.0	
Participant's age	<30 years	11	26.2	26.2	26.2
	30–39 years	12	28.6	28.6	54.8
	40-49 years	13	31.0	31.0	85.7
	> 50	6	14.3	14.3	100.0
Total		42	100.0	100.0	
Education level of Participant's	university	20	47.6	47.6	47.6
	above university	22	52.4	52.4	100.0
Total		42	100.0	100.0	
Years of work for the participants	< 1 years	2	4.8	4.8	4.8
	1–5 years	13	31.0	31.0	35.7
	6–10 years	13	31.0	31.0	66.7
	10-15 years	5	11.9	11.9	78.6
	> 15 years	9	21.4	21.4	100.0
Total		42	100.0	100.0	

Characteristic {N=42}	variables	Frequency	Percent age %	Valid Percent	Cumulative Percent
Participant's Specialization up on graduation	Nutritionist / dietitian	41	97.6	97.6	97.6
	food technology	1	2.4	2.4	100.0
Total		42	100.0	100.0	
Participant's workplace	Public Hospital	22	52.4	52.4	52.4
	specialty hospital	20	47.6	47.6	100.0
Total		42	100.0	100.0	
Do you have specialization in special field	yes	20	47.6	47.6	47.6
	no	22	52.4	52.4	100.0
Total		42	100.0	100.0	

**Table 2. Services provided to patients**

Services provided to patients N.42	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
To whom is the service provided to patients	Only Hospital inpatients	33	78.6	78.6	78.6
	For inpatients and outpatient clinics	9	21.4	21.4	100.0
Total		42	100.0	100.0	
Who are the meals planned by the nutritionist?	17	40.5	40.5	40.5	
	25	59.5	59.5	100.0	
Total		42	100.0	100.0	
The number of meals served to patients per day	three meal /day	25	59.5	59.5	59.5
	two meal /day	15	35.7	35.7	95.2
	One meal /day	2	4.8	4.8	100.0
Total		42	100.0	100.0	
Preparing and serving meals under the supervision of a specialized team	yes	23	54.8	54.8	
	no	9	21.4	76.2	
	some times	10	23.8	100.0	
Total		42	100.0	100.0	
Method of nutritional counseling service for patients	orally	11	26.2	26.2	26.2
	orally and give print	31	73.8	73.8	100.0
Total		42	100.0	100.0	
The possibility of providing services through the referral clinic for nutrition	yes	15	35.7	35.7	35.7
	no	21	50.0	50.0	85.7
	Sometimes	6	14.3	14.3	100.0
Total		42	100.0	100.0	
Kitchen with the appropriate specifications	yes	8	19.0	19.0	19.0
	no	16	38.1	38.1	57.1
	There is, but not as required	18	42.9	42.9	100.0
Total		42	100.0	100.0	

Services provided to patients N.42	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
Check a patient during the mealtime	yes	3	7.1	7.1	7.1
	no	10	23.8	23.8	31.0
	sometimes	29	69.0	69.0	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
Keep track of the patient's weight	yes	13	31.0	31.0	31.0
	no	4	9.5	9.5	40.5
	Sometimes	25	59.5	59.5	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
The problem you face in the implementation of services	lack of cooperation with physician	9	21.4	21.4	21.4
	the number of dietitian is not enough	10	23.8	23.8	45.2
	low salary	10	23.8	23.8	69.0
	working components	13	31.0	31.0	100.0
	<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>

The above Table 2 illustrates the role and method of services provided by the dietician in hospitals in the state of Khartoum Where the answer of (78 .6%) of the participants was that they provide nutritional services to inpatients only inside the hospital excluding patients who are not in the wards Which is consistent with the answer to the lack of offices such as a referral clinic for out patients. Meal planning is often done for patients who only need special meals (59.5%) And most of the participants (59.5 %) said that they provide 3 meals a day to patients in the hospital. This may have depended on the budget prepared for the hospital. In the question about the method of providing nutritional education to patients, the answer was that, most of them were providing nutrition education through printed nutritional prescriptions and verbal advice (73.8%), All of these methods are used in health

education program, especially in developing countries [19] most of the participants ( 50%) reported that health education is not provided through referral clinics, They also explained, as in the above table, that most of the services (42.9%) are provided through kitchens, but they are not well qualified . Where the kitchen is the main key in providing food services, and it must be with the required specifications and equipment [20] And also (59.5 %) of participants was tracking the weight of patients sometimes Which is very important, especially for some diseases such as chronic diseases [21]. As in the Table 2, the participants' answer was that there are different obstacles in the work, the most common being the lack of work components (31.0 %), which are consistent with some of the other answers.

**Table 3. Participants knowledge**

participants knowledge N=42	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
Nutritional care of a patient is only the role of the dietitian	agree	28	66.7	66.7	66.7
	disagree	1	2.4	2.4	69.0
	some what agree	13	31.0	31.0	100.0
	<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>
Weight management is important for all patients	agree	32	76.2	76.2	76.2
	disagree	1	2.4	2.4	78.6
	some what agree	9	21.4	21.4	100.0
	<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>

participants knowledge N=42	variables	Frequency	Percentage %	Valid Percent	Cumulative Percent
All patients who are discharged need nutritional follow-up	agree	29	69.0	69.0	69.0
	disagree	2	4.8	4.8	73.8
	some what agree	11	26.2	26.2	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
Dietitian should knew the importance of medical discussion of patient cases	agree	41	97.6	97.6	97.6
	some what agree	1	2.4	2.4	100.0
	<b>Total</b>	<b>42</b>	<b>100.0</b>	<b>100.0</b>	
The dietitian should know when a patient needs special nutrition	agree	40	95.2	95.2	95.2
	disagree	1	2.4	2.4	97.6
	some what agree	1	2.4	2.4	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
The dietitian should knows the strategies to support food intake at meals	agree	40	95.2	95.2	95.2
	disagree	1	2.4	2.4	97.6
	some what agree	1	2.4	2.4	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
If permitted encourage a co patients to bring food from outside hospital	agree	4	9.5	9.5	9.5
	disagree	30	71.4	71.4	81.0
	some what agree	8	19.0	19.0	100.0
<b>Total</b>		<b>42</b>	<b>100.0</b>	<b>100.0</b>	
Customs traditions important serving especially Sudan and are in meals on	agree	41	97.6	97.6	97.6
	some what agree	1	2.4	2.4	100.0
	<b>Total</b>	<b>42</b>	<b>100.0</b>	<b>100.0</b>	

As shown in Table 3, there are a number of questions about dietitian knowledge, 66.7% Of all the enrolled participants, answered that nutrition education is not limited to dietitian only, but is supposed to be in a working group, 76.2% answered in agreement with weight management, And also 69.0 % agreeing to the importance of following up on patients after they are discharged from the hospital Which matches some studies that confirm the importance of monitoring patients' weight [22]. (97.6%) of responded by agreeing to the importance of discussing patients' cases with the medical team, Also, (95.2%) of them answered the importance of knowing the nutritionist when the patient needs to plan special meals and should knows the strategies to support food intake at meals, As in one of the previous studies, discussing the patient's condition with the nutritionist is important in providing the appropriate nutritional program to integrate all medical information [23]. Al so, Most participants (71.4%) do not agree to bring food without what is allocated to consume in the hospital if it is allowed to do so, and this is important to enable the nutritional follow-up of the patient. The above Table 3 shows the answer to the importance of Sudanese customs and traditions in eating foods, and most of them (97.6%) answered that it is important, while some2.4% answered that it may be important which is very important because of different food traditions in Sudan [24].

Correlations

		participants age	employed years of participants
Spearman's rho	Correlation Coefficient	1.000	.892**
	participants age	.	.000
	Sig. (2-tailed)	42	42
	N	.892**	1.000
	Correlation	.000	.
	employed years of Coefficient participants Sig. (2-tailed)	42	42
N			

\*\* Correlation is significant at the 0.01 level (2-tailed)

Correlations

		Participants age	Education levels of participants
Spearman's rho	Correlation Coefficient	1.000	.396**
	participants age	.	.009
	Sig. (2-tailed)	42	42
	N	.396**	1.000
	Correlation	.009	.
	education levels of Coefficient participants Sig. (2-tailed)	42	42
N			

\*\* Correlation is significant at the 0.01 level (2-tailed)

Correlations

		Specialization up on graduation	Customs traditions important serving especially Sudan	and are in meals in
Spearman's rho	Correlation Coefficient	1.000	1.000**	
	Specialization up on graduation Sig. (2-tailed)	.	.	
	N	42	42	
	Customs and traditions are Coefficient	1.000**	1.000	
	important in serving meals especially in Sudan Sig. (2-tailed)	42	42	
	N			

\*\* Correlation is significant at the 0.01 level (2-tailed)

4. CONCLUSION

From my observations, after analyzing the answers of the participants in this study, is that most of them have accumulated experiences, and many of them hold degrees above university and do not lack knowledge and awareness of the application of nutritional education programs. However, one of the biggest obstacles is the

work components And setting a budget that enables workers to implement many programs in health education related to nutrition and caring with participation others in implementing programs such as doctors and others who are supposed to be within the treated team. It is also noted that there is a small number of those who completed the questionnaire, which, in my estimation, may be due to not subscribing to the

Internet, and their answers may be important to support this study.

## 5. RECOMMENDATIONS

Paying attention to the nutrition departments within government hospitals, as they play an important role in health education And setting the budget that enables the implementation of nutritional programs such as weight management and other measures, Integration of roles through working in the medical team, The presence of the internet in health facilities is also very important, so it must be entered for free.

## CONSENT

As is followed in any research, after obtaining permission from the official from the target group, the choice is for those who want to participate in the follow-up of the questionnaire and to exclude all those who do not wish to do so.

## ETHICAL CONSIDERATION

Permission was given to fill out the questionnaire through the office responsible for the nutrition departments in government hospitals at the Ministry of Health, Khartoum State, before sending any electronic copy. Which was only by taking permission via WhatsApp to the head of the Nutrition Department at the Ministry of Health

## COMPETING INTERESTS

Author has declared that no competing interests exist.

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