



Research Article

ASSESSMENT OF DIETITIANS & NUTRITIONISTS KNOWLEDGE AND PRACTICE OF APPLYING NUTRITION CARE PROCESS IN KHARTOUM STATE HOSPITALS

¹*Raga Khalil Abdalla Musa, ²Dr. Somiya Gutbi salim and ³Dr. Nagem Eldien Alsir Alhassan

¹Dietitian in Cardiac Surgery and Renal Transplantation Center, Ahmed Gassim Hospital in Khartoum

²Associate professor, University of Bahri

³Assistant Professor, University of Bahri

ARTICLE INFO

Article History:

Received 28th August, 2016

Received in revised form

22nd September, 2016

Accepted 24th October, 2016

Published online November, 30th 2016

Keywords:

Dietitian,
Nutritionist,
Nutrition Status,
Nutrition Care Process.

ABSTRACT

Healthcare professionals (HCPs) are expected to engage in best-practice care to address nutrition-related conditions in a multidisciplinary manner. The present study is descriptive case finding which conducted in four hospitals, Ahmed Gassim hospital, Ibn Sina, Omdurman educational and Al Ribat university hospital in Khartoum state, during the period from January 2016 to April 2016. sample size included 52 dietitians. The study objective was to assess dietitians and nutritionist knowledge and practice in hospitals. Data gathered through questionnaire. Most of participants were female (88.5%). All of them were either B.Sc. or M.Sc. degree holders (44.2%) specialized human nutrition, (30.8%) specialized in human nutrition and dietetics. The majority of the participants had licenses (75%) and (36.5%) of them had experiences from (2-5) years. The result revealed that only (23.1%) of the participants remembered four steps of NCP, and (21.2%) of the them understanding the steps of NCP very well. More than half of participants (57.5%) did not have concomitant tools such as tape (MUAC), (38.5%) of participants never make nutrition diagnosis to their patients, (46.2%) did not calculate meal for the patients, (26.9%) of participants applied NCP, while (36.5%) applied NCP in some cases. Significant relationship was found between Practicing NCP in the hospital & Making documents (p value = 0.00). The study concluded that most of the participants measured anthropometric indices, but they did not calculate diet according to patients needs and recommended that more training and courses should be provide to increase knowledge and update information to the dietitians and nutritionist.

Copyright © 2016, Raga Khalil Abdalla Musa et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Nutrition care process (NCP) is a systematic problem-solving method used to critically think and make decisions to address nutrition-related problems and provide safe and effective quality nutrition care. Nutrition care is an organized group of activities allowing identification of nutritional needs and provision care to meet these needs. The nutrition care process (NCP) was established by the American Dietetic Association (ADA, 2009) as a standardized process for provision of nutrition care. The NCBDN established also to protect the health safety and welfare of the citizens from harmful nutrition practice by providing for the licensure and regulation of persons engaged in the practice of dietetics/nutrition by formulating educational standards for those persons (NCBDN, 2015), (Mahan & Escott-stump, 2008). The nutrition care process promotes improved quality of care given to patients.

*Corresponding author: Raga Khalil Abdalla Musa,
Dietitian in Cardiac Surgery and Renal Transplantation Center,
Ahmed Gassim Hospital in Khartoum.

It will provide and emphasize the dietitians' ability to think critically and to provide scientifically evidenced based nutrition care to patients. By doing this, the dietetics practitioner gains professional autonomy by demonstrating improved outcomes related to the use of the nutrition care process (Lacey & Pritchett, 2003). The process of nutrition care includes four steps nutrition assessment, nutrition diagnosis, nutrition intervention, and nutrition monitoring and evaluation. The main aim of nutrition professionals is to apply nutrition principles to promote health and wellbeing, prevent disease, restore health in individuals and help individuals or groups of people to eat a balanced diet, in which food supply meets nutrient needs, involves application of nutrition principles from a very broad field to almost every facet of human life (Michael et al., 2009). Nutrition care for the ill or hospitalized patient is more complex. It should include the monitoring of food intake and, when intake is inadequate, should also include taking action through counseling the patient, providing emotional support and encouragement, or initiating a diet meeting patient health requirements. It is obvious that through nutritional care requires the attention and contribution of many professionals,

particularly those of the nurse, clinical dietitian and physician (Maille, et al., 2005). Report by European Federal of the Associations of Dietitians (EFAD) indicated in assessing dietitian ,four different standardized language(SL) and one clinical terminology, either known to, or being used by dietitians in Europe: International Classification of Functioning, Disability & Health (ICF); International Classification of Functioning, Disability & Health – Dietetics (ICF-D); International Dietetics & Nutrition Terminology (IDNT); the SL of the Polish Society of Sciences & Polish National Food & Nutrition Institute, and Systematized Nomenclature of Medicine (SNOMED). This survey extends and confirms the results of an earlier investigation by EFAD PPC that the IDNT is the preferred choice of the countries represented here (Yuill, 2012).

Justification

Due to increase number of nutritional diseases, this need a significant application of nutrition care process. The application of nutrition care process has a great impact on human health and well being (ADA, 2009). In Sudan there is no available published data to assess dietitians, nutritionists' knowledge and practices of applying nutrition care process. This drew the researcher attention to assess knowledge and practices, among dietitians and nutritionists in some Sudanese hospitals.

Objectives

General objective

To assess dietitians and nutritionists knowledge and practice for applying nutrition care process in hospitalizing patients.

Specific objectives

To assess dietitians and nutritionists knowledge in applying nutrition care. To assess the dietitians and nutritionists practice in applying nutrition care

Study area

The study was descriptive case finding conducted in four hospitals in Khartoum State there were: Ibn Sina specialized Hospital, Ahmed Gasim for cardiac surgery & renal transplantation center, Omdurman educational Hospital, and Al Ribat university hospital in Khartoum State.

Study population

All Dietitians and Nutritionists in the four hospitals during period of the study (January to April 2016)

Sample size

The sample included all Dietitians & nutritionists in four hospitals, the total number was 52 participants.

Sampling selection

The total sample was selected by using the convenience type of sampling. All the available nutritionists and dietitians during the period of data collection. Data was gathering through questionnaire designed to collect information about demographic data, dietitian's knowledge and practice in nutrition care process

Data analysis

Data was analyzed by using statistical Packages for Social Sciences (SPSS 18.0 software) and the results were presented

in form of frequency and cross tabulation for Chi square and correlations.

RESULTS

Table 1. Gender, Age and Education of Participants

Distribution of the participants According to Gender		
Parameters	Frequency	Percent
Male	6	11.5
Female	46	88.5
Total	52	100.0
Distribution of the participants According to Age Group		
Parameters	Frequency	Percent
25 30	20	38.5
31 35	16	30.8
36 40	7	13.5
More than 40 Years	9	17.3
Total	52	100.0
Distribution of participants According to education levels		
Parameters	Frequency	Percent
Bachelor	35	67.3
M.Sc.	17	32.7
Total	52	100.0
Distribution of the participants According to University		
Parameters	Frequency	Percent
Ahfad University For Women	22	42.3
Khartoum University	10	19.2
Ribat University	9	17.3
Omdurman Eleslameia	9	17.3
Sudan for science and technology	1	1.9
Alzaiem Alazhari university	1	1.9
Total	52	100.0

Table 2. Knowledge of participants about NCP

Study Field		
Parameters	Frequency	Percent
Human Nutrition	23	44.2
Human Nutrition and Dietetics	16	30.8
Food Technology	3	5.8
Agriculture	1	1.9
Other	9	17.3
Total	52	100.0
Knowledge about nutrition care process		
Parameters	Frequency	Percent
Yes	47	90.4
No	5	9.6
Total	52	100.0
Knowledge about NCP steps		
Parameters	Frequency	Percent
4 steps	12	23.1
3 steps	7	13.5
2 steps	10	19.2
1 step	5	9.6
Not determined	13	25.0
Total	47	90.4
Place for study NCP		
Parameters	Frequency	Percent
University	37	71.2
Workshop	9	17.3
Courses	1	1.9
Total	47	90.4
Number of Studied Courses and workshops		
Parameters	Frequency	Percent
One course	6	11.5
Two courses	2	3.8
Not determined	2	3.8
Total	10	19.1
Understanding the steps of NCP		
Parameters	Frequency	Percent
Very well	11	21.2
Well	18	34.6
Not well	5	9.6
Total	34	65.4

Table 3. Participantspractices of NCP

Existence of nutritional protocols or guidelines in the hospital		
Parameters	Frequency	Percent
Yes	7	13.5
No	45	86.5
Total	52	100.0
List of protocols		
Parameters	Frequency	Percent
Pediatric Protocol	5	9.6
Naso gastric tube (NG) feeding Protocol	2	3.8
Total	7	13.5
Practicing NCP in the hospital		
Parameters	Frequency	Percent
Yes	14	26.9
No	19	36.5
Some cases	19	36.5
Total	52	100.0
Cases in which applied NCP		
Parameters	Frequency	Percent
Pediatric	2	3.8
Critical cases	15	28.8
DM(Diabetes Mellitus)	2	3.8
Weight management	4	7.7
Surgery	2	3.8
Indeterminately	8	15.4
Total	33	63.4
Documentation		
Parameters	Frequency	Percent
Yes	17	51.5
No	16	48.5
Total	33	100.0
Contents of Documents		
Parameters	Frequency	Percent
Sometimes Notes	12	70.6
Log book	5	29.4
Total	17	100

Table (1) shows that female participants represented (88.5%) while males (11.5%). Common age group rang between (25-30) years (38.5%) and the age of more than 40 years were (17.3%). The majority of the participants (67.3%) had Bachelor degree and (32.7%) had master of sciences (MSc) degree. Most of them (42.3%) were from Ahfad University for women and (1.9%) were from Al Zeem Alazhary and same percentage from university of Sudan Science& Technology. (75%) of participants had a license, while (25%) did not have. The majority of participants (36.5%) were working from 2 to 5 years, while (11.5%) were working for more than 15 years. Table (2) shows knowledge of participants about NCP.

Majority of participants (44.2%) studied human nutrition, followed by (30.8%) studied human nutrition and dietetics, while (25%) of them studied others scopes. Most of participants (90.4%) had knowledge about nutrition care process, (9.6%) did not have. From those who knew NCP, 23.1%knew 4 steps, while (13.5%), (19.2%), (9.6%), were knowing 3 steps, 2 steps, and 1 step; respectively. According to type of study NCP, most of participants (71.2%)studied NCP in university, and (19.2%) studied it in courses and workshop, Most of participants (11.5%) studied one course on NCP, while (3.8%) studied two courses,(34.6%) of respondents understood the steps of NCP, (21.2%) did not understand it very well, while (9.6%) did not understand steps of NCP. Table (3) shows the practices of participants about NCP. The majority of them (86.5%) had no protocol or guidelines to follow, while13.5% did not have any protocol to follow, (9.6%) had pediatric protocol and (3.8%) had NGT protocol.

Modifying the diet according to food allergy, food habits and tradition		
Parameters	Frequency	Percent
Yes	38	73.1
Never	3	5.8
Some cases	11	21.2
Modifying the diet according to physical signs (sore tongue, dental caries)		
Parameters	Frequency	Percent
Yes	43	82.7
Never	1	1.9
Some cases	8	15.4
Total	52	100.0
Modification Type		
Parameters	Frequency	Percent
Fluids	18	35.3
Soft	20	39.2
Semi solid	10	19.6
Mashed	2	3.9
Pureed	1	2
Total	51	100
Making nutrition diagnosis to the patients		
Parameters	Frequency	Percent
Yes	27	51.9
Never	20	38.5
Some cases	5	9.6
Total	52	100.0
Calculating diet according to the patient's needs		
Parameters	Frequency	Percent
Yes	12	23.1
Never	24	46.2
Some cases	16	30.8
Total	52	100.0
Checking if the patients take his prescribed meals		
Parameters	Frequency	Percent
Yes	30	57.7
Never	7	13.5
Some cases	15	28.8
Total	52	100.0
Having concomitant tools (tape, MUAC, food composition table)		
Parameters	Frequency	Percent
Yes	22	42.3
No	30	57.7
Total	52	100.0
Practice of Dietitian against unimproved Patient Condition		
Parameters	Frequency	Percent
Reassessment	22	42.3
Consult senior dietitian	2	3.8
Consult doctor	7	13.5
Other	8	15.4
Nothing	13	25.0
Total	52	100.0

The results also show (26.9%) of the participants practiced NCP in the hospital (36.5%) did not practice NCP and the same percent of them practiced NCP for some cases in the hospital, (28.8%) reported that they applied NCP in critical cases (15.4%) of their answers indeterminately, while (7.7%) applied NCP for weight management, (3.8%) applied NCP in surgery, pediatric and diabetes mellitus cases. From those who applied NCP (51.5%) made documents, while (48.5%) did not make any, (29.4%) of these documents were log book and some of them used notes (70.6%). The result also shows that (57.7%) of the participants did not measure mid upper arm circumference (MUAC), while (21.2%) practice measuring MUAC for all of the patients and the same percent of them measured MUAC for some cases to assess nutritional status, 76.9%of the participants measured weight for all the patients, while(3.8%) of them did not measure weight for the patients,(59.6%)of the participants measured height, while (13.5%) did not measure height to assess nutritional status. The majority (75%) of the participants did not measure waist circumference (WC), while (11.5%) measured it. Table (3) also shows that (73.1%) of the participants used lipid profile

clinical data for planning diet for all patients, while (5.8%) of them did not use lipid profile test. (76.9%) of them used liver functions test for planning diet for the patients, (17.3%) used it for some cases and (5.8%) of them did not use liver function test at all.

Concerning nutritional concomitant tools, more than half of participants (57.7%) did not have concomitant tools, while (42.3%) had nutritional concomitant tools. As for what should be done if there were no improvement of the patient's condition, (42.3%) of the participants reassessed the patients,

Table 4. Relationship between participants' experiences & practicing NCP in the hospitals

		Practicing NCP in the hospital						Total	
		Yes		No		Some cases		F	%
		F	%	F	%	F	%		
Distribution According to work as Dietitian/ nutritionist	0-1 year	1	1.9	3	5.8	3	5.8	7	13.5
	2-5 year	4	7.7	11	21.2	4	7.7	19	36.5
	6-10 year	4	7.7	2	3.8	4	7.7	10	19.2
	11-15 year	4	7.7	3	5.8	4	7.7	10	19.2
	More than 15 year	1	1.9	0	0	5	9.6	6	11.5
Total		14	26.9	19	36.5	19	36.5	52	100

P value = 0.121

Table 5. Relationship between Practicing NCP in the hospital & Making documents

		Making documents				Total	
		Yes		No		F	%
		F	%	F	%		
Practicing NCP in the hospital	Yes	11	21.2	3	5.8	14	26.9
	No	0	0	19	36.5	19	36.5
	Some cases	6	11.5	13	25.0	19	36.5
Total		17	32.7	35	67.3	52	100.0

P value = 0.00

Table 6. Understanding the steps of NCP & participants practice in case of unimproved patient condition

		Practice of Dietitian against patient condition										Total	
		Reassessmen t		Consult senior dietitian		Consult doctor		Other		Nothing		F	%
		F	%	F	%	F	%	F	%	F	%		
Understanding the steps of NCP	Very well	10	29.4	0	0	0	0	0	0	1	2.9	11	32.4
	Well	6	17.6	1	2.9	2	5.9	3	8.8	6	17.6	18	52.9
	Not well	3	8.8	1	2.9	1	2.9	0	0	0	0	5	14.7
Total		19	55.9	2	5.9	3	8.8	3	8.8	7	20.6	34	100

P value=0.081

The majority (82.7%) of the participants used renal function test for patients, (13.5%) used it for some cases, while (3.8%) did not use renal function test for patient, (88.5%) of the participants used renal glucose test, while (1.9%) of them did not use blood glucose test to plan any diet. Regarding anemic patients, (86.5%) of the participants used hemoglobin tests (11.5%) used it for some cases and (1.9%) did not use hemoglobin tests to plan a diet. The same table also shows that the majority of the participants (73.1%) modified le (21.2%) modified a diet for some cases, (5.8%) of them did not mdiet for patients according to the food allergy, food habits and tradition, whiodify diet according to food allergy or food habits and tradition. The majority of the participants (82.7%) modified diet for patients who had sore tongue, dental caries, (15.4%) modified diet for some cases and (1.9%) of them did not modify diet for patients. Types of modified diet was soft diet (39.2%), (35.3%) was fluids, (19.6) was semisolid, (3.9%) was mash and (2.0%) was puree. About (51.9%) of the participants preformed nutritional diagnosis for the patients, (38.5%) did not use nutritional diagnosis, while (9.6%) of them made nutritional diagnosis for some cases. The table also shows that (46.2%) of the participants never calculated diet according to patient's needs, while (23.1%) calculated diet a according to the patients needs, (57.7%) of the participants checked if the patients were taking their recommended meal, (28.8%) checked some cases, while (13.5%) of them did not check their patients.

(25.0%) did not do anything, (13.5%) consulted doctors, (3.8%) consulted senior dietitians. Table (4) shows that, no significant relationship was found between participants experiences & their Practicing of NCP in the hospitals .P value = 0.121. In table (5) significant relationship was detected between Practicing NCP in the hospital & Making documents P value = 0.00. In table (6), no significant relationship was found between Understanding the steps of NCP & Dietitians practice in case of unimproved patient condition

DISCUSSION

The results of the current study revealed that most of the studied participants (88.5%) were females. Thus, it was unsurprising that a remarkable portion of them (42.3%) graduated from Ahfad University for Women, followed by University of Khartoum graduates (19.2%), while graduates from Ribat, Islamic university of Omdurman, University of Sudan, and Alzaim Alazhari represented the rest of the females (17.3%, 17.3%, 1.9%, and 10.9% ; respectively). Most of participants fell at the age group ranging between 25-30 years (38.5%). All of them were either B.Sc. or M.Sc. degree holders; mainly specialized in human nutrition (44.2%), human nutrition and dietetics (30.8%), while the rest of them had other relevant university majors, such as food technology and Agriculture.

These results pointed to the fact that nutrition and dietetic related specializations are actually available in a limited number of the Sudanese universities. Moreover, most of the universities that provide those specializations do not provide a specialized NCP courses in their curricula, except for Ahfad, Khartoum and Al Ripat Universities. However, most of the participants (71.2%) stated that they gain their NCP knowledge from their nutrition and dietetics subjects. Similar result was reported by (Boyee, 2011). The present results revealed that the participants of different levels of experience ranging between less than year to more than 15 years of practice, with the largest portion (36.5%) who had 2-5 years of professional practice. Also, marginal applications of standards of professional practice were practiced with only 13.5% of those who studied dietitians applied nutrition protocol in their profession of nutrition and dietetics. Previous results showed improvement in patients conditions when dietitians used protocol (Hopkins, 2010). Most of the participants did not have knowledge about NCP, Only (23.1%) of them could mentioned four steps of NCP. Nevertheless more than half of them claimed that they were practicing NCP on all patients or some cases, that means many of participants practicing NCP were without knowledge or without standardized nutritional language. In literature, NCP emphasized the dietitians' ability to think critically and to provide scientifically evidenced based nutrition care to patients (Lacey& Pritchett, 2003). The present result showed limited number of studied NCP innutrition options at universities or workshops. Training and courses will support knowledge, as reported by Lacey& Pritchett (2003), common core of knowledge is basic to the training of dietitians.

The result revealed that a high proportion of the participants did not make documents for their patients. Previous result by (Katsilambros, et al., 2010) is not in line with the present result, which showed using of documentation on collecting information about the hospitalized patients. The use of biochemical data was far beyond the required, as stated by (22.2%) of the participants; which would hinder their ability to design dietary plans for meeting the physiological needs of individuals and may lead to development of serious complications. The present study also showed that (37.5%) of the participants did not use anthropometric measurement to plan a diet. These negative practices were not only due to the fact that many of the of the participants in the studied hospitals were actually specialized in other professions and many of them did not have licenses, but it may be also attributed to the lack of tools and equipments that could help participants to carry on their work. The result had also pointed that 57.7% of the participants did not have concomitant tools, such as tape, MUAC, and food composition table. Thus, 46.2% of the participants did not calculating diet according to the patient's needs. They rather modified the diet according to physical signs (sore tongue, dental caries) (73.1%) food allergy and food habits and tradition (82.7%). Also, remarkable portion of the participants (38.5%) did not make nutrition diagnosis of their patients. Nutrition diagnosis helps dietitians and nutritionists to identify patients' nutrition problems, and enabling them to make a proper intervention. More than half of participants did not make the right decision if the patient does not respond to intervention. So, they need reassessment. Reassessment as stated by Mahan and Escott-Stump (2008) for the initial plan may change the condition of the patient, as new

needs are identified, or if the patient dose not respond to interventions implemented.(Kris-Etherton, 2014). Significant relationship was found between practicing NCP in the hospital and making documents. Using the International Dietetics and Nutrition Terminology (IDNT) for documentation of nutrition care provides consistent descriptions of the nutrition care process (Hopkins, 2010).

Conclusions

The study included 52 dietitians. Most of them were female the majority of dietitians between the age of (25-30) years, most of dietitians hold bachelor degree. High percentages of dietitians were from Ahfad University for Women and more than half hold nutritional licenses. About (36.5%) of participants had experiences between (2-5) years. (44.2%) of them studied human nutrition and (30.8%) studied human nutrition and dietetics and quarter of them did not know NCP steps. The study showed that only 11 participants from total number understood NCP steps very well. The majority of participants did not have any protocol or guideline for practice in their hospitals. About (26.9%) of participants practiced NCP for their patients, (36.5%) did not practice NCP for their patients, (48.5%) from the participants did not make documents in patient's nutritional care. Despite high number of participants measured weight and height but also they did not calculate diet according to patient's need.

Recommendation

The study recommended that more training and courses should be provided to dietitians and nutritionists to increase knowledge and update information on nutritional care. The number of dietitians needs to increase in hospitals to meet the capacity of patients.

REFERENCES

- American Dietetic Association ADA. 2009. American Dietetic Association/Commission on Dietetic Registration code of ethics for the profession of dietetics and process for consideration of ethics issues. *J Am Diet Assoc*, 109(8):1461-7.
- Boyee, J. 2011. Practice and Application of knowledge by Nutrition *University of Kentucky Master's Theses*. Paper 122.http://uknowledge.uky.edu/gradschool_theses/122
- Hopkins, B. 2010. Weight Management Matters, Nutrition Care Process: An overview, page 10-11.
- Katsilambros, N., Dimosthenopoulos, C., Kontoginni, M., Manglara, E. and Kalliopi, A. 2010. *Clinical Nutrition in Practice*. Blackwell publishing, New Delhi.
- Kris-Etherton, P.M., Akabas, S.R. and Bales, C.W. 2014. The need to advance nutrition education in the training of health care professionals and recommended research to evaluate implementation and effectiveness. *The American Journal of Clinical Nutrition*, 99 (5): 1153–1166.
- Lacey, K. and Pritchett, E.2003. ADA adopts road map to quality care and outcomes management, Nutrition Care Process and Model, *Journal of the American Dietetic Association*. 103:1061-1072.
- Mahan, L.K., and Escott-Stump, S. 2008. *Krause's Food & Nutrition Therapy*. 12th ed. Philadelphia: Saunders ISBN 978-0-8089-2378.

- Maille, J., Skates, J. and Pritchett, E. 2005. Scope of dietetics practice framework. *J Am Diet Assoc.* 105:634–640.
- Michael, J., Cassidy, A., Voster, H. and Lanham, S. 2009. *Introduction to human nutrition*. Second edition. Blackwell publishing, New Delhi. ISBN: 978-1-4051-6807-6
- North Carolina Board of Dietetics/Nutrition. 2015. Guideline C. Unlicensed individuals aiding the practice of dietetics/nutrition versus provisionally licensed dietitians/nutritionists. http://www.ncbdn.org/images/uploads/Unlicensed_Individuals_Aiding_the_Practice_of_Dietetics_Final_9_2015__3. (Access December 2015).
- Yuill, K.A. 2012. Report on knowledge and Use of Nutrition Care Process & Standardized Language by Dietitians in Europe, European Federation of The Associations. www.cpc.unc.edu/projects/nutrans/whatis/ (2014/08/EFAD-NCP-2014).
