

Knowledge and Attitudes of Healthcare Professionals in Relation to Diet and Nutrition Recommendations for Breast Cancer Prevention

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Abstract

A cross-sectional study was carried out among forty healthcare professionals working at oncology units in two hospitals (public and private) in Accra, Ghana to assess the knowledge and attitudes of healthcare professionals in relation to diet and nutrition recommendations for breast cancer prevention. A self-administered questionnaire was used to obtain information on healthcare workers demographics, knowledge and attitudes on diet and nutrition for breast cancer prevention. Knowledge scores were calculated for all correct responses. Test of associations employed Pearson's correlation statistical tool with level of significance set at $p < 0.05$. Ninety percent of the healthcare professionals had average or above average total knowledge score. Majority of the healthcare professionals did not have knowledge about recommended alcohol limits for men (82.5%) and women (77.5%). More than half (57.5%) of the healthcare professionals did not have knowledge of high calorie foods. Dietary advice was perceived to be the responsibility of dietitians (72.5%); however, 90% of the healthcare professionals were willing to provide dietary advice. A very weak correlation was found between years in clinical practice post qualification and their nutrition knowledge (Pearson's $r = 0.008$, $p = 0.178$). Thirty-five percent of them reported lack of expertise as a barrier to providing dietary advice to patients. Whereas majority of the healthcare professionals had average or above knowledge of diet and nutrition recommendations for breast cancer prevention, few had sufficient practical nutrition knowledge. This highlights the need to include practical nutrition education in the training of healthcare professionals.

Keywords: Nutrition knowledge, attitude, healthcare professionals, breast cancer

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1. Introduction

Breast cancer is the second most common cancer in the world (Ferlay et al., 2012; World Cancer Research Fund/American Institute for Cancer Research, 2012). It occurs largely in women although men can also be rarely affected. Breast cancer is a varied disease with multiple subtypes, which may be classified by histopathology, grade, cell receptor and menopausal status.

In 2018, approximately 2.1 million breast cancer cases were reported worldwide, contributing to about 11.6% of the total incidence of cancer (International Agency for Research on Cancer, 2018). Though the incidence and overall mortality rates of breast cancer in developing countries is lower than that of developed countries, the case fatality rate is much higher (Shuman et al., 2010). Data from Globocan suggests a prevalence rate of 20.4% and mortality rate of 12.4% in Ghana (Global Cancer Observatory, 2018).

Multiple studies have long established risk factors in the development of breast cancer. Non-modifiable risk factors include age, race, first-degree relatives with breast cancer and age at menarche. Modifiable risk factors include lifestyle factors such as obesity, alcohol consumption, diet/nutrition and physical activity (Kamińska et al., 2015; Nindrea et al., 2017; World Cancer Research Fund/American Institute for Cancer Research, 2018). Other established modifiable risk factors include hormone therapy and ionising radiation exposure from medical treatment.

Evidence-based guidelines for cancer prevention have been developed and continuously updated with emerging evidence-base by European Code against Cancer and WCRF/AICR (Schüz et al., 2015; World Cancer Research Fund/American Institute for Cancer Research, 2018). Current research evidence increasingly shows that adherence to dietary patterns and lifestyle close to cancer prevention recommendations, reduces the risk of new cancers, mortality from cancer and all causes, as well as improving quality of life in cancer survivors

(Harris et al., 2016; Kohler et al., 2016; Nomura et al., 2016).

Healthcare professionals are well placed to promote cancer prevention through education on healthy diet and lifestyle behaviours (Velentzis et al., 2011). Nutrition training among health professionals therefore plays a critical role in the cancer care continuum (Lelièvre & Weaver, 2013). However, insufficient nutrition knowledge is commonly reported among health professionals including doctors and nurses, often leading to a lack of confidence and reluctance to discuss diet-related lifestyle changes that may positively impact on patient outcomes (Mowe et al., 2008; Miles et al., 2010; Rodman & Murphy, 2011). Increasing the nutritional knowledge of healthcare professionals has been demonstrated to improve the management of malnourished patients in a community dietetic intervention for healthcare professionals (Kennelly et al., 2010). In Ghana, there is limited data on the nutrition knowledge and attitudes of health professionals in breast cancer prevention. Thus, this study seeks to evaluate the knowledge and attitudes of oncology healthcare professionals on recommendations for diet, nutrition and breast cancer prevention in Ghana.

2. Methodology

2.1 Study design and area

A cross-sectional study was carried out at oncology units in two hospitals (public and private) in Accra. These two locations were selected because they are both referral centres for breast cancer cases. The public hospital is the premier referral hospital in Ghana for breast cancer cases and the second largest teaching hospital in West Africa. The private hospital is a specialist cancer centre which treats all cancers including breast cancer.

2.2 Sample size, selection and description of participants

The target population for this study were the doctors, nurses and radiographers at the oncology units of the two hospitals. The total enumeration method was used to recruit 40 healthcare professionals who consented to partake in the study out of a total of 65.

2.3 Data collection procedure

A self-administered questionnaire was designed and used to obtain information on the socio-demographic characteristics (age, gender, occupation, duration of service) of the healthcare professionals. Health professionals' knowledge in relation to diet and nutrition and physical activity recommendations for breast cancer prevention was assessed by developing ten questions based on the World Cancer Research Fund cancer prevention reports (World Cancer Research Fund/American Institute for Cancer Research, 2018). Attitudes of the healthcare professionals to diet, nutrition and physical activity recommendations for breast cancer prevention was assessed using structured questions adapted from the Food and Agriculture guidelines for assessing nutrition-related knowledge, attitudes, and practices (Marias & Glasauer, 2014).

2.4 Ethical considerations

The study protocol was pre-tested among health professionals in an oncology unit in a tertiary hospital prior its use in the main study. Ethical approval was obtained from the Ethics and Protocol Review Committee of the School of Biomedical and Allied Health Sciences, University of Ghana. Permission was obtained from the management of the two hospitals before the commencement of the study. Written informed consent was obtained from all the participants after the study objectives were explained to them.

2.5 Data Analysis

Data were analysed using SPSS version 20.0. Descriptive statistics of means and standard deviation was used to analyze continuous data. All categorical data were expressed as frequencies and percentages. Knowledge scores were calculated for all correct responses. A correct answer was scored 1 and a wrong answer 0 with provision made for the option "I don't know." A score between 0-4 was classified as 'poor knowledge', 5-7 as 'average knowledge' and 8-10 as 'good knowledge.' Sub-group comparisons were made between nutrition knowledge and length of years of practice. A p-value of <0.05 was considered significant.

3. Results

3.1 Background characteristics of the healthcare professionals

Table 1 shows the background characteristics of the participants. Forty out of 65 healthcare professionals (response rate of 61.5%) comprising 18 males and 22 females participated in the study. Majority of the participants (60%) were between the ages of 18-34yrs. The highest proportion of participants were diagnostic and therapy radiographers (45%) with physicians being the lowest (17.5%). Majority of the participants (70%) indicated 2 years to 15 years of oncology practice. Approximately 53% of the participants reported that they had undertaken a nutrition course as part of their training; however, a large number (68.4%) of them had no further nutrition training since qualification.

Table 1: Background characteristics of participants (N = 40)

Variables	n (%)
Location of work	
Public hospital	23 (57.5)
Private hospital	17 (42.5)
Gender	
Male	18 (45)
Female	22 (55)
Profession	
Nurse	15 (37.5)
Physician	7 (17.5)
Diagnostic/Therapy Radiographers	18 (45)
Age groupings(years)	
18 - 34	24 (60)
35 - 44	10 (25)
45 - 54	4 (10)
55 - 64	2 (5)
Years in clinical practice post-qualification	
<2 years	4 (10)
2 -15 years	31 (77.5)
> 15 years	5 (12.5)
Years in oncology practice	
>2	9 (22.5)
2 -15	28 (70)
>15 years	3 (7.95)
Undertaken nutrition course during training	
Yes	21 (52.5)
No	19 (47.5)
Refresher nutrition course post-qualification	
Yes	12 (30.0)
No	28 (70.0)

3.2 Nutrition knowledge in relation to recommendations for breast cancer prevention

More than half of the health professionals reported that they were aware of the existence of recommendations for breast cancer prevention (Table 2), and knew that being overweight and obese were risk factors for postmenopausal breast cancer. Most of the participants (85%) gave positive responses on physical activity being a protective factor against premenopausal breast cancer risk. Though, majority of the health professionals (75%) had correctly identified alcohol as a risk factor for breast cancer, only 17.5% and 22.5% of men and women respectively, knew of the recommended alcohol limits for cancer prevention. Approximately, 58% of the health professionals were unable to identify foods that are high in fat and sugar. A high percentage of the health professionals, (70%) knew that lactation protects against breast cancer. The most frequent source of obtaining information was scientific journals (42.5%), followed by mass media 13 (32.5%).

Table 2: Nutrition knowledge of health professionals in relation to current dietary recommendations for breast cancer prevention

Question	Positive Response n (%)	Negative Response n (%)	Unaware n (%)
Awareness of current dietary guidelines for breast cancer prevention	24 (60)	16 (40)	0 (0)
Knowledge of overweight as protective factor against premenopausal breast cancer	5 (12.5)	28 (70)	7 (17.5)
Knowledge of overweight as risk factor for postmenopausal breast cancer risk.	26 (65)	3 (7.5)	11 (27.5)
Knowledge of obesity as risk factor of postmenopausal breast cancer.	28 (70)	7 (17.5)	5 (12.5)
Knowledge of lactation as protective factor against breast cancer	28 (70)	9 (22.5)	3 (7.5)

Question	Positive Response n (%)	Negative Response n (%)	Unaware n (%)
Knowledge of physical activity as protective of postmenopausal breast cancer risk	34 (85)	1 (2.5)	5 (12.5)
Knowledge of alcohol intake as breast cancer risk factor	30 (75)	8 (20)	2 (5)
Knowledge of recommended alcohol limits per day for men	7 (17.5)	33 (82.5)	0 (0)
Knowledge of recommended alcohol limits per day for women	9 (22.5)	9 (22.5)	22 (55)
Knowledge of foods that is high in fat and sugar.	17(42.5)	23 (57.5)	0 (0)

3.3 Participants' nutrition knowledge scores

Table 3 shows participants' scores in assessment of health professionals' nutrition knowledge. This includes their ability to identify foods that cause weight gain, recommended alcohol units for men and women among other dietary factors in breast cancer prevention. A very weak correlation was found between years in clinical practice post qualification and their nutrition knowledge scores (Pearson's $r=0.008$, $p=0.178$).

Table 3: Participant's nutrition scores

Participants Score out of 10	Number of health professionals n (%)	Grading
≤ 4	4 (10.0)	Poor
5 -7	31 (77.5)	Average
8 -10	5 (12.5)	Good

3.4 Attitudes of participants towards providing dietary advice

Most of the health professionals (87.5%) believed that diet has a role in prevention of breast cancer. The dietician/nutritionist was stated as the primary person responsible for providing dietary advice to patients by 72.5% of the participants. Almost all of the health professionals (90%) showed willingness to provide dietary advice to breast cancer patients but only 22.5% of them were highly confident in their nutrition knowledge (Table 4).

Table 4: Attitudes of participants towards providing dietary advice

Attitude	Response	n (%)
Nutrition has a role in breast cancer prevention.	Believe	35 (87.5)
	Does not believe	5 (12.5)
Responsibility for providing dietary advice on breast cancer prevention	Dietician/nutritionist	29 (72.5)
	Nurse	10 (25)
	Oncologist	1 (2.5)
Willingness to provide dietary advice	Willing	36 (90)
	Not Willing	4 (10)
Self-confidence in nutrition knowledge	Highly confident	9 (22.5)
	Okay	23 (57.5)
	Not Confident	8 (20)

3.5 Barriers facing health professionals in provision of dietary advice

The most common barrier that the health care professionals reported that they faced or were likely to face in providing dietary advice to patients was lack of expertise (35%). Twenty percent of health professionals however felt that it was not part of their job to provide dietary advice, and a few (7.5%) indicated that they did not have any barriers.

Table 5: Barriers to providing dietary advice

Barriers to providing dietary advice	n (%)
Lack of time	6 (15)
Lack of support structures	5 (12.5)
Lack of expertise	14 (35)
Lack of knowledge	4 (10)
Not part of my job	8 (20)
I do not have any barriers	3 (7.5)

4. Discussion

An important aspect in recommendations and prevention of breast cancer is nutrition. Thus, it is essential for health professionals in the oncology unit to have current and evidence-based knowledge on dietary recommendations to support patients. Nutrition knowledge, attitude and practices of three types of health professionals working in the oncology units of a private and public hospitals were assessed. Findings of this study showed that more than half of the healthcare professionals had taken a nutrition course as part of their training. This might be due to the inclusion of a nutrition module in the syllabus for medicine and nursing training in Ghana (University of Ghana, 2017). This nutrition module is designed to help students appreciate the different types of food nutrients, their functions, sources, value to health, and the effects of over-nutrition and under-nutrition (Miles et al., 2010).

There are several implications for health professionals who do not have a nutrition course as part of their training. Mowe et al., (2008) reported that insufficient knowledge was the main barrier to good nutritional management of patients. Health professionals with insufficient nutrition knowledge would not be equipped to offer good dietary advice to patients in need of nutritional therapy nor offer dietary advice to them at all. In this present study about a quarter of the healthcare professionals reported that they were willing to offer dietary advice however only a few stated that they were confident to do this. Our study also found that Diagnostic and Therapeutic Radiographers formed 45% of the total population. Therapeutic radiographers in Ghana are involved in oncology, and their role does not require having nutrition knowledge unless they personally so desire. Since they form majority of healthcare professionals attending to the patients they should be encouraged and supported to acquire knowledge in nutrition to give basic information to these patients before they follow up for specialist care from the dietician.

In this study, less than half (36.0%) of the health professionals had undergone a refresher course after professional qualification. A study that sought to assess the nutrition knowledge of nurses in diabetes management in Tamale, Northern Ghana reported similar findings. The authors found that only a few of the nurses had undertaken a refresher course post-qualification (Mogre et al., 2015). These results suggest that nutrition training in the continuing education of practicing clinicians may be a low priority in Ghana. In the face of rapidly evolving scientific knowledge in the field of nutrition and dietetics, emphasis ought to be placed on refresher courses for health professionals to enable them keep up with evolving scientific evidence, meet the changing demands of their roles, and improve patient outcomes. More importantly, the lack of current nutrition knowledge will have an undesirable translational impact on disease and treatment outcomes especially in cancer care, and the overall health of the country as a whole.

Our results also showed that journals were the most frequent source of obtaining nutrition information. Only a few of the health professionals stated that they received nutrition information from dietitians. This is contrary to findings from a study carried out among oncology nurses in Australia and New Zealand, in which majority (63%) were not regular readers of journals as a source of nutrition information while 35.9% received nutrition information from dietitians (Puhringer et al., 2015). This suggests that the health professionals in this present study could improve upon their nutrition knowledge, if the information is made readily available to them through manuals, journals, and treatment guidelines. Those practising and still in academia are likely to have access to journals however, those in practice may have limited access. Health professionals have an essential role to play in educating patients and the community. Availability of health information provides confidence in clinical decision-making, improves practical skills and attitude to care (Pakenham-Walsh, 2004). Thus, opportunities for the use of seminars, in-service training for all oncology health professionals could be avenues for enhancing their nutrition knowledge. Health professionals may also register with national and international bodies in order for them to have access to current evidenced-based information on nutrition. There is also the need for health units to create journal clubs to review changing scientific evidence, and to integrate dietitians into oncology specialties and meetings to enable knowledge sharing.

The majority of the health professionals were aware alcohol increased breast cancer risk but had low level of knowledge of recommended alcohol limits. Similarly, Giannetti et al., (2002) found that health professionals in Canada had low knowledge of the risks of alcohol consumption. This is not positive and strengthens the call by the African Region division of the World Health Organisation (WHO), on the need for African countries to sufficiently strengthen and fund health services response to commensurate with the magnitude of public health problems on the harmful use of alcohol (World Health Organization, 2010).

Seventy percent of the participants knew that obesity was a major cause of postmenopausal breast cancer; however, more than half of them were unable to identify the foods that were high in fat and sugar and were likely to cause weight gain. This finding is consistent with a study in Tamale, Ghana in which over 70% of the nurses did not know trans-fats and their food sources (Mogre et al., 2015). These findings are a cause for concern about the quality of advice provided by health professionals to obese patients. Poor knowledge and attitudes of health practitioners on chronic diseases undermine quality of care. Healthcare professionals' knowledge in this regard requires improvement.

A high percentage of healthcare professionals (70%) in this study knew that lactation protects against breast cancer. This was contrary to the low level of knowledge (30%) observed among registered female nurses in Karachi, Pakistan (Ahmed et al., 2006). The difference in settings in which both studies were conducted may account for the variations. The Pakistan study was conducted in seven teaching hospitals whereas this present study was carried out in two hospitals. Staff involved in oncology practice are likely to have better knowledge on breast cancer risk factors. The knowledge that lactation protects against breast cancer is an additional benefit that healthcare professionals can use to further promote and encourage breastfeeding. In Ghana, the Ministry of Health advocates exclusive breastfeeding for 6 months for the optimum growth of infants (Ministry of Health, 2009).

This study found no significant association between the years in clinical practice post qualification and the nutrition knowledge of the healthcare professionals ($r=0.008$, $p=0.178$). There was also no statistical association between people who had received nutrition training and their nutrition knowledge ($p=0.258$). This finding was unexpected as it was thought that health care professionals who were experienced might be more likely to have greater nutrition knowledge compared to the less experienced ones. The lack of Continuing Professional Education (CPE) among healthcare professionals during practice may play a role in this finding. This was previously reported in a study among 7691 public sector healthcare professionals in three of the 10 regions of Ghana (Volta, Western and Brong Ahafo regions). Of all respondents, 6696 (97%) reported that they needed CPE to maintaining and improving professional knowledge and skills (Aiga, 2006). This outcome could be due to the structure of the nutrition courses for health professionals. Most nutrition courses for healthcare professionals seek to impart basic nutrition information and may not include education on the evolving evidence-base in diet, nutrition and physical activity in breast cancer prevention. This implies that healthcare professionals may not be adequately equipped to assist in the nutritional management of patients. It is hoped that the results of this study will encourage additional research into the current nutrition promotion practices among healthcare professionals in Ghana.

Our study demonstrated that healthcare professionals thought that providing dietary advice to patients was primarily the responsibility of dietitians followed by nurses. These results appear consistent with the findings from a survey carried out in the Northern part of Ghana. The nurses who participated in the survey believed that providing dietary advice to cancer patients was primarily the responsibility of dietitians. They also felt that nurses played a very important role in providing dietary advice due to their regular contact with the patients (Mogre et al., 2015). This goes to suggest that the presence of a dietician or nutritionist in various departments in a hospital could have an influence on the dietary practices of patients and the health care team at large. However, when there are limited human resources, particularly dietitians/nutritionists, available to the cancer patients, an interdisciplinary approach should be considered to provide cancer survivors with general healthy eating guidelines (Puhringer et al., 2015).

Furthermore, healthcare professionals (2.5%) in this current study felt that oncologists were the least likely health professional group to be the primary provider of dietary advice to patients. This is consistent with another survey, which reported a relatively low proportion of oncologists providing lifestyle advice to any survivor at the time of consultation (Jones et al., 2005). The limited time during consultation may not afford oncologists the opportunity to include dietary advice in their counselling. In Ghana, the doctor and nurse population ratio is one doctor to 10,452 and 1 nurse to 1, 251 (National Development Planning Commission, 2010). In view of the high ratio of patients to doctors, it would not be realistic to suggest that the time for consultation be increased.

The most common barrier the healthcare professionals reported they faced or were likely to face in providing dietary advice to patients, was a lack of expertise followed by a lack of time and support structures. Pakenham-Walsh and Bukachi (2004), previously reported similar findings in their study among 2009 selected countries in Africa (of which Ghana was included). The studies suggested a gross lack of expertise across the health workforce as the most common barrier faced by healthcare professionals. This implies a lack of expertise could lead to associated suboptimal and ineffective health care practices in hospitals. The lack of expertise could also be the reason only a small percentage of healthcare professionals felt confident providing dietary advice with their nutrition knowledge.

This study encountered the following limitations: the use of a cross-sectional study cannot be used to extrapolate cause and effect. Also, a sample size of 40 healthcare professionals who completed the survey only represents the proportion of the healthcare professionals currently working in the selected oncology units in Ghana. Thus, the recruited sample may not be truly representative of what is going on in other oncology departments across the country.

5. Conclusion and Recommendation (s)

Majority of the health professionals had insufficient knowledge on nutrition and breast cancer prevention. However, they showed favourable attitudes towards providing dietary advice to their patients. Commonly reported barriers to providing dietary advice include lack of expertise and time. Thus, there is a need to include

nutrition education in Continuous Professional Development programmes for healthcare professionals. Future studies should be carried out using larger sample size and over a longer period.

Conflicts of interest

The authors declare that they have no conflicts of interest.

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