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Effectiveness of Nutritional Educational Program on Nurses' Knowledge for Patients with Cancer at Oncology Center in AL-Diwaniyah Governorate.

By
Waleed Ali Armeh

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Supervised By

Prof. Dr. Hasan ALwan Baiee (Ph.D.)

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بِسْمِ اللَّهِ الرَّحْمَٰنِ الرَّحِيمِ

وَأَيُّوبَ إِذْ نَادَىٰ رَبَّهُ أَنِّي مَسَّنِيَ الضُّرُّ وَأَنْتَ أَرْحَمُ الرَّاحِمِينَ ﴿٨٣﴾ فَاسْتَجَبْنَا لَهُ فَكَشَفْنَا مَا بِهِ مِنْ ضُرٍّ وَآتَيْنَاهُ أَهْلَهُ وَمِثْلَهُمْ مَعَهُمْ رَحْمَةً مِنْ عِنْدِنَا وَذِكْرَىٰ لِلْعَابِدِينَ ﴿٨٤﴾

صَدقَ أللهَ العلي ألعظيم

﴿من سورة الانبياء الآيات 83,84 ﴾

Dedication

To

This dissertation is dedicated to my inspiration Professor Dr.Hussien Jasim, mercy and Peace upon his soul. He had an exceptional mentality, a high moral character, and a fighting spirit, he is gone but the memory of his beautiful smile and kind heart and noble acts remains. His memory will reamain as a light that will guid me in my scientific and practical life.

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Abstract

Background Malnutrition was a severe and widespread concern among cancer patients. It had a detrimental impact on their prognosis and quality of life. According to studies, 15 % to 40% of cancer patients lost weight while undergoing therapy. In individuals with advanced cancer, this proportion could rise to as high as 85 percent. As a result, early treatment and health education on dietary supplement and behaviors might help patients achieve better outcomes and avoid complication issues.

Objectives this study were evaluate the effectiveness of the nurse's knowledge toward nutritional program needed for patients with cancer at oncology center in Al-diwaniyah. governorate. and to find out the association between certain demographical variables and participation of intervention sessions on the oncology nurses' knowledge.

Methodology A quasi experimental study design was conducted at Al-Diwaniyah Specialized Oncology Center, from 17th March 2021 to 15th May 2022. The researcher prepared the program and instrument. A selected non-probability purposive sample had been consisted of (60) oncologic nurses divided into two groups, which were enrolled through using non-probability purposive sampling approach. One group was exposed to the intervention program (study group) and the other group did not exposed to the applied educational program (control group), the two groups were assessed three times (pre-test) prior to the application of the predetermined program and (post-test 1&2) after conducting this program.

Results revealed that nurses from both groups in pre-test had poor knowledge (70% for study and 80%for control groups respectively). after application the program the (post-tests) revealed a highly statistical significant improvement ($p< 0.001$) in knowledge score (Mean ± S D= 2.37±0.451)

comparing to the pretest score (Mean ± SD=1.58±0.402) due to the effectiveness of educational programs.

Conclusion the study concluded that the education program was effective in enhancing knowledge on nutrition for oncologic patient. which can be reflected positively on the progress of treatment for patients.

Recommendation a need to establish nutritionist nursing specialty in our country similar to other developed countries to improve our community health and initiating one year post graduate nursing diploma study for academic nurses in our nursing colleges to strengthen and raising the nursing level of awareness in this field.

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List of Abbreviations

Items	Meaning
ANH	artificial nutrition or hydration
ANOVA	Analysis of Variance
APA	American Psychological Association
ARDS	Acute respiratory distress syndrome
BMI	Body mass index
CNS	Central nervous system
CT	Computed tomography
DNA	Deoxyribonucleic Acid
FDA	Food and drug administration
GIT	Gastro intestinal tract
HDI	human development index
HRQOL	Health-Related Quality of Life
LMICs	Low- and Middle-Income Countries
MOH	Ministry of Health
MRI	Magnetic resonance imaging
NCB	Number of new cases
NCD	non-communicable diseases
PA	Physical Activity
PTH	Parathormone
R. M. ANOVA	Repeated measure of ANOVA
RNA	Ribonucleic acid
SDGs	Sustainable Development Goals
SPSS	Statistical Package of Social Sciences
TNM	Classification of Malignant Tumors
TSNAs	tobacco-specific nitrosamines
US	Ultrasound
USA	United associated America
VD	Vitamin D
WHO	World Health Organization

Table of Statistical Symbols

symbols	Meaning
r	Correlation Coefficient
HS	High significant
M.S	Mean of score
NS	Not significant
O.P.	Observed Power
%	Percentage
S	Significant
SE	Standard error
SD	Stander Deviation

Chapter One

Introduction

Chapter one

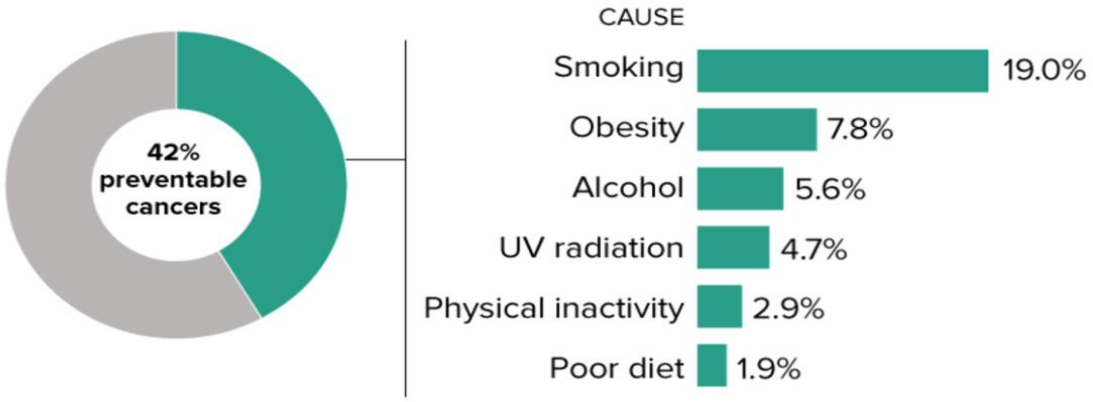
1.1. Introduction:

Cancer is a serious health issue in Iraq, where it is the second largest causes of death, according to Ministry of Health data from 2016. Cancer is among the primary causes of mortality and morbidity, in 2018, 9.6 million people died, or one per six deaths. Lung, colorectal, stomach, prostate, and cancer of liver affect males, whereas breast, colorectal, cervical, lung, and thyroid cancer affect women (Jassim & Muhebes, 2021).

Cancer is a broad category of diseases that can start in almost any organ or portion of the human and spread throughout the body when stray aberrant cells multiply uncontrollably, invade neighboring body regions, and/or migrate to other organs. The latter is referred to as metastasizing, and it is a major cause of cancer-related death. Cancer is also known as a malignant tumor or a neoplasm (Awad & Mohammed, 2016).

Tumors are categorized into two types: malignant and benign tumors, based on their behavior and histogenesis. Benign tumors (non-invasive and confined tumors) Slow pace of development, histological likeness to parent tissue, differentiated tissue that does not penetrate or disseminate to other places). Malignant tumors (tumors that are invasive and hence able to spread either direct or by metastasis) are cancerous tumors. Variable histological similarity to the parent tissue, High annual growth rate atypical nuclear alterations are more common in malignant neoplastic cells, darker staining hyperchromasia and more variability in nuclear size, enlargement of the nucleus, shape and chromatin clumping pleomorphism (Ramesh et al.,2013).

Cancer kills over 70% of people in low- and middle-income nations. The five most prevalent behavioral and dietary hazards include a high



BMI, a low fruits and vegetable consumption, a lack of physical activity, the use of cigarettes, and the use of alcohol, which account for around a third of cancer deaths. Through avoiding risk factors and applying existing evidence-based preventative techniques, 30-50 % of malignancies may now be avoided (Ministry of Health of Iraqi, 2020).

Figure (1.1): Most common causes of cancer.(Blackadar, 2016)

Non communicable disease (NCDs) are by far the main cause of mortality worldwide, accounting for 71 percent of all fatalities in 2016 (WHO, 2018), with cancer accounting for 4.5 million (29.7%) of the 15.2 million deaths annually. Cancer is the primary or 2nd major cause of death in 134 of the world's 183 nations. In 2018, an anticipated 18.1 million additional cancer diagnoses were made, with 9.6 million cancer deaths. (Fig. 1.2). Cancer is already the cause of one out of every six deaths worldwide. Because of rising average lifespan and epidemiologic and demographics shifts, the number of new cases and death continues to go up (Ferlay et al., 2018).

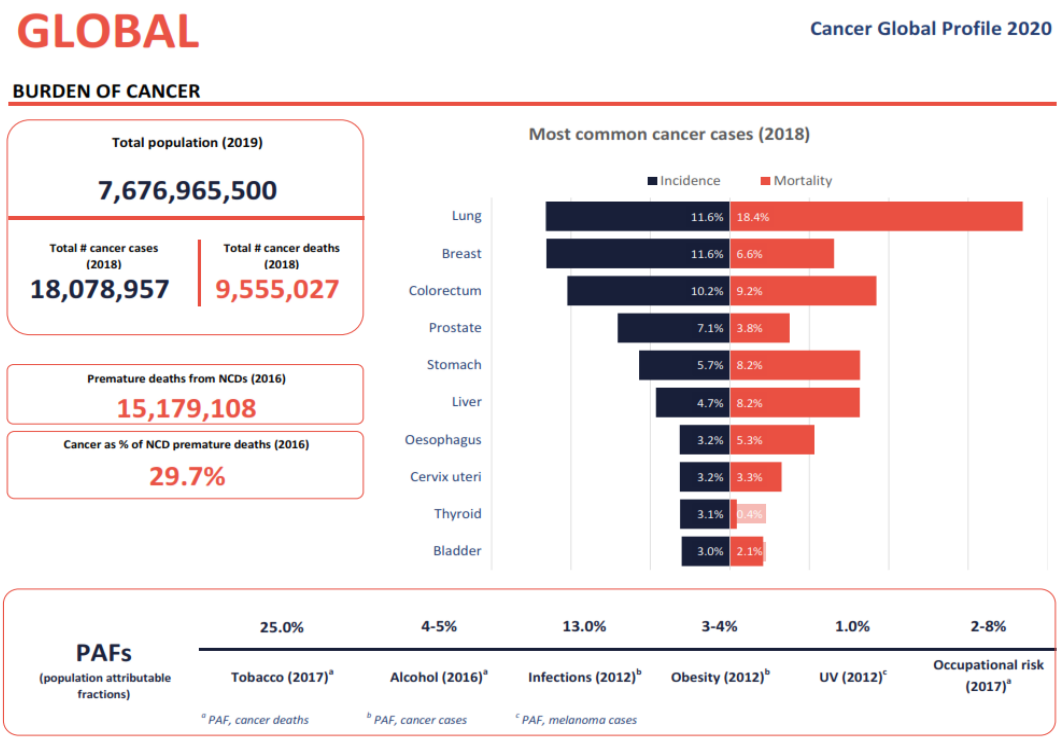


Figure (1.2):Estimated global burden of cancer in 2018 (WHO, 2020).

By 2030, the Sustainable Development Goals (SDGs) seek for a one-third decrease in NCD-related premature mortality. Unfortunately, improvement in cancer has lagged behind advances in other NCDs (Bennett et al., 2018).

In the United Kingdom, the incidence of cancer in males are lower than incidence in the European Union and it is elevated in women. The incidence of cancer for males and females in the UK are more than developing countries(Lindsay et al.,2015) . In (20) large countries of the world in (2012) the incidence of new cancer cases about (14.1) millions and the death related to cancer about (8.2) millions. The main cancer cases estimated about 1.82 million were (Lung cancer), 1.67 million were (Breast cancer), 1.36 million (Colon cancer) and the commonly causes of cancer death about 1.6 million were (lung cancer), about 745,000 deaths were (liver cancer) and about 723,000 death were (gastric cancer)(Bray *et al*., 2018).

In Iraq, statistics reveal that there were (63,923) newly diagnosed Iraqi patients with various forms of cancer who were recorded by the Iraqi Ministry of Health from all Iraqi governorates except for the Kurdistan area from 1995 to 2004. (Sulaymaniyah, Erbil, and Dohaku). The statistical outcome denotes (307525). The distribution of new cancer cases in Iraq reveals that male patient account for 52.08 percent of the population, while female patients account for 47.92 percent of all patients (160142) (Table 1.1) (MOH, 2015).

Table (1.1): cancer cases in Iraq from 1994 to 2015, showing that the number of new cancer cases grew with time for both men and women.

Year	Male		Female		Total	
	No.	%	No.	%	No.	%
1994	4,230	54.4	3,555	45.6	7,785	100%
1995	4,344	54.7	3,604	45.3	7,948	100%
1996	4,466	53.5	3,894	46.5	8,360	100%
1997	4,521	52.7	4,071	47.3	8,592	100%
1998	4,774	52.9	4,259	47.1	9,033	100%
1999	4,556	50.9	4,380	49.1	8,936	100%
2000	5,376	49.4	5,512	50.6	10,888	100%
2001	6,758	50.6	6,574	49.4	13,332	100%
2002	6,964	49.8	7,021	50.2	13,985	100%
2003	5,698	50.6	5,550	49.4	11,248	100%
2004	7,525	51.8	6,995	48.2	14,520	100%
2005	7,505	49.5	7,667	50.5	15,172	100%
2006	7,377	48.5	7,849	51.5	15,226	100%
2007	6,656	46.8	7,557	53.2	14,213	100%
2008	6,589	46.5	7,591	53.5	14,180	100%
2009	7,201	47.3	8,050	52.7	15,251	100%
2010	8,544	46.3	9,938	53.7	18,482	100%
2011	9,352	46.2	10,926	53.8	20,278	100%
2012	9,268	43.9	11,833	56.1	21,101	100%
2013	10,568	45.4	12,740	54.6	23,308	100%
2014	11,411	44.5	14,187	55.5	25,598	100%
2015	11,205	44.4	14,064	55.6	25,269	100%

Another study, shows that about 5,720 persons with cancer were listed in Iraqi Ministry of Health. They were about 31.05 for each 100000 of people in the year 1991(Al-hussein & Hameed, 2016). While (83) for each 100,000 of the people in the year (2020) (figure. 1.3) (WHO, 2020).

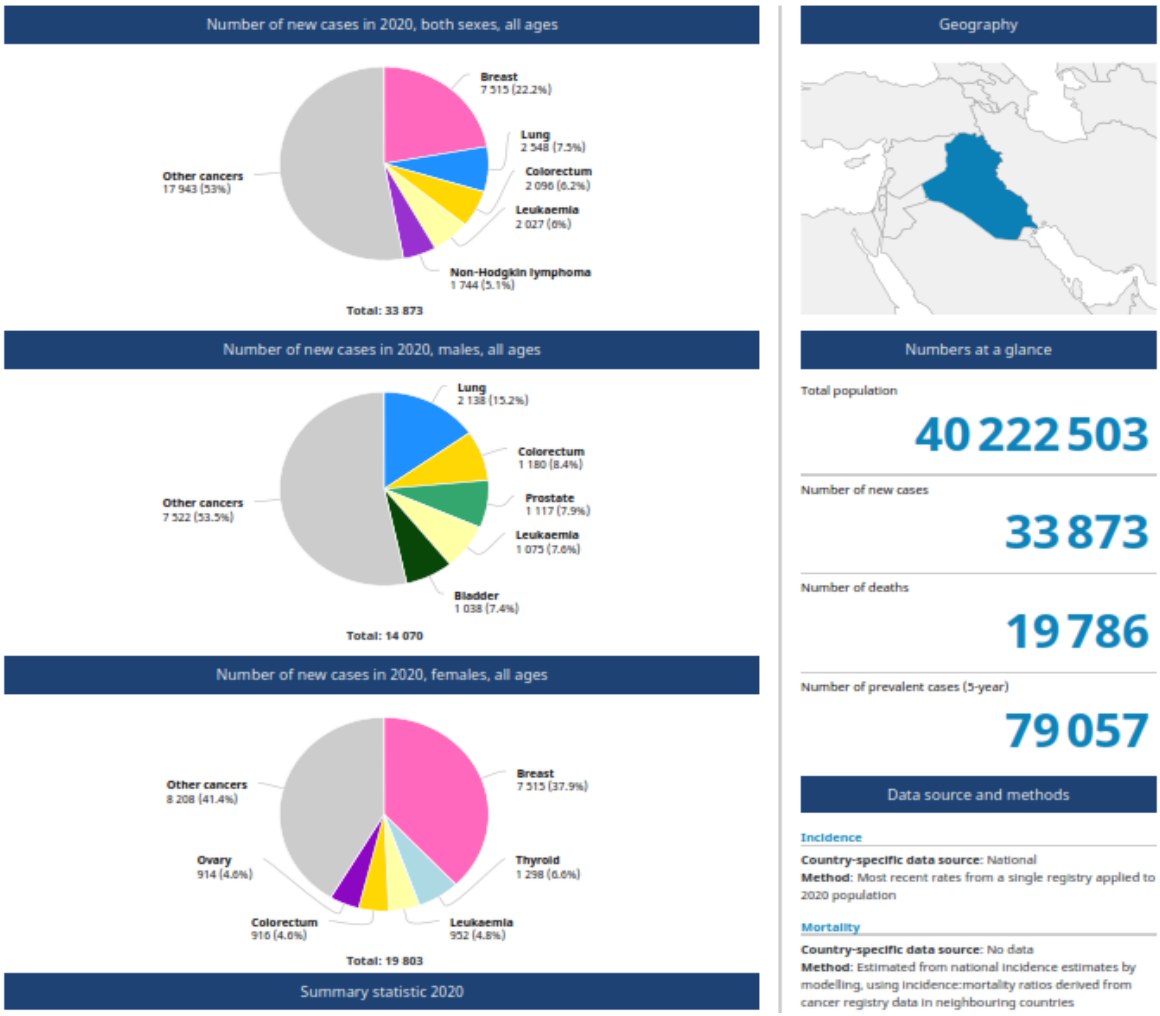


Figure (1.3): Distribution of New Cases of Cancer both sexes all ages Group, Iraq, 2020 (NCB, 2021).

Nurses have an important role in nutrition care, even though the dietician is the food and nutrition specialist. Nurses may be in charge of screening hospitalized patient to detect those who are at risk of malnutrition. They frequently act as a link between the dietician and the physician, and also other members of the medical team (Soediono, 2013).

Nurses have far greater interaction with patients and their families, and they are frequently accessible as a nutrition source when dietitian are unavailable, such as in the evenings, on weekend, as well as during discharge instruction. Dietitians may only be accessible on a consulting basis in home care and health settings. Nurses may supplement the dietitian's nutrition counseling and give basic nutrition education to hospitalized patients who are at low to moderate nutritional risk. Nurses have an important role in all aspect of nutritional treatment (Parker et al., 2017).

The relation between diet and cancer is complex. 1/3 of all cancer fatalities in the U.s are due to nutritional variables, such as ingesting items that may cause cancer or neglecting to consume nutrients that guard against cancer (American Institute for Cancer Research, World Cancer Research Fund (WCRF)). For example, an approximately 14 percent to 20 percent of all deaths that caused by cancer in the USA is related to obesity, whole grains, a diet rich in fruit and vegetable, poultry and fish, and low in red and processed meats has been associated to a lower risk of developing or dying from various cancers. (Haskins et al.,2020) as show by the following.

1. Eating can be hampered by the local effect of tumor, mainly those of the GIT. Head or neck cancers, for example, can make swallowing difficult.
2. Nutrient absorption and metabolism can be affected by tumor-induced alterations in metabolism. As a result, patients with cancer can eat a sufficient amount of calories while still losing weight.
3. Anorexia can be caused by a number of conditions, including anxiety, depression, pain, early satiety, exhaustion, thick saliva, nausea, sore mouth, loss of taste, dry mouth, or esophagitis, among others. Losing weight, malnutrition, and a bad prognosis can all result from anorexia.
4. Cancer therapies can change nutritional intake, absorption, or requirement in addition to impairing consumption. While some consequences may be temporary, such as an increased requirement for

protein and calories as a result of surgery, others, such as persistent dysphagia, might show down for year after patients with head or neck therapy is ended.

5. Sufficient nourishment through cancer therapy can help patients tolerate the treatment, increase immune function, speed recovery, and improve the life quality.
6. Cancer survivors can benefit from dietary and lifestyle changes in the long run.
7. Palliative diet may improve the life quality and well-being in cancer patients who are nearing the end of their lives (Locher et al., 2011).

1.2. Importance of the Study:

Cancer is seen as a major public health issue worldwide. In 2018, 18.1 million people were diagnosed with cancer globally, with 9.6 million dying as a result. By 2040, the incidence may have steadily increased, with LMICs accounting for nearly two-thirds of all cancers, globally, Cancer account for about a third of all non-communicable diseases (NCD) related early deaths in people aged 30-69. Lung cancer is the common cancer kind (11.6 % of all cases), following by female breast cancer (11.6 percent) and colorectal malignancies (11.6 percent). Lung cancer is the most common cause of cancer mortality (18.4% of all fatalities), following by colorectal (9.2%) and gastric cancers (8.2%), (Fig. 1.1),The most prevalent cancer type varies by country, with some diseases, like cervical cancer and Kaposi sarcoma, being far more common in low-HDI nations than in high-HDI ones (WHO, 2020).

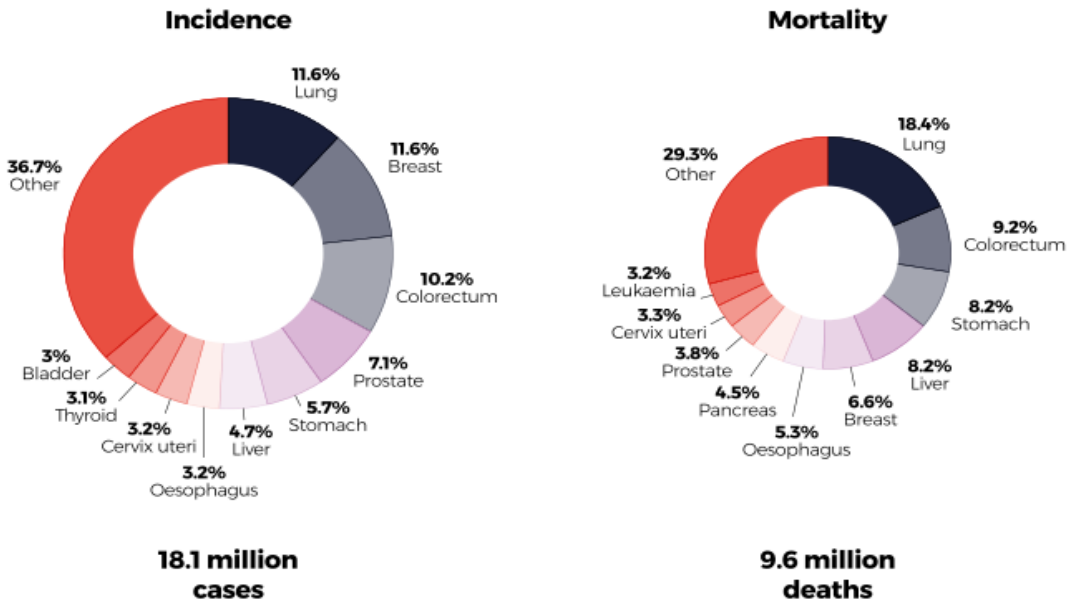


Figure (1.4): Cases and mortality by the top ten cancer types for both men and women in 2018. (WHO, 2020).

Malnutrition is the first sign of the presence of this disease. Cancer chemotherapy has an important influence on the patient's nutritional and health status due to its side effects. Malnutrition is detrimental to cancer patients especially patients treated with chemotherapy (Lis et al.,2012).

Malnutrition reduces the quality of life, decreases the patient's functional activities, increases the rate of complications, prolongs hospital stays, and increases the risk of death. Therefore, early assessment of nutritional status and appropriate nutritional interventions in cancer patients could improve their nutritional status, help patients maintain their weight and respond better to treatment, and improve their quality of life (Thi & Nguyen, 2019).

As a result, good dietary guidance should be included in every cancer treatment strategy. Nutrition is both an art and a science when it involves both the mind and the body. Nutrition isn't just about eating or not eating; it's about the sort of food which eat, how much eaten, how often its

eaten when it, and why you eat it. Feeding the body, mind, and spirit requires combining want with the need and pleasures with health (Dudek, 2013).

1.3. Statement of the Problem:

Effectiveness of Nutritional Educational Program on Nurses' Knowledge for patients with Cancer at oncology center in AL-Diwaniyah Governorate.

1.4. Objectives of the Study:

1. To Assess the nurses need regarding nutrition of the patients with Cancer.
2. To Assess the knowledge of nurses regarding nutrition of the patients with cancer (pre-test).
3. To evaluate the effectiveness of the nutritional educational program on nurse's knowledge regarding patients with cancer.
4. To identify the demographical data for study sample.
5. To find out the relationship between socio demographical characteristic with oncology nurses' knowledge.

1.5. Definition of Terms:

1.5.1. Effectiveness:

A. Theoretical definition:

Ability to generate the desired outcome, which is frequently quantified in terms of the reach desired result's quality. In another term, it is focus on the effectiveness of the intervention in the normal circumstances of a clinical trial, through an intervention designed to be effective in studying efficacy (Al-tameemi, 2021).

B. Operational definition:

The degree which the educational program successfully producing change in the nurse's outcome.

1.5.2. Education Program

B. Theoretical Definition:

An educational program is a systematic developed and designed intervention (for instance as learning-teaching strategies, instructional materials, presentations and programs,) as solutions for complex problems in educational practice, which also targets at progressing human knowledge toward selected issue (Hayder & Mohammed, 2018).

A. Operational definition:

It refers to a planned educational program that constructed systematically to provide nurses with knowledge and information about nutritional instructions for patients with cancer to enhance quality of care.

1.5.3. Knowledge:

A. Theoretical definition:

Knowledge is information and understanding about a practical subject. It maybe facts, feelings, or experiences known by a person or group of people (Salih, 2019).

B. Operational definition:

Systematic nutritional instruction provided nurses to enhance their action when dealing for cancer patients.

1.5.3. Nutrition:

A. Theoretical definition:

The physiological and biochemical mechanism whereby an organism uses food to sustain its existence. The process includes "ingestion, absorption, assimilation, biosynthesis, catabolism, and elimination". Nutritional science is a discipline of research that studies the physiological processes of eating and drinking (Kumar, 2012).

B. Operational definition:

Balance diet with proteins, fruit, vegetable, whole grains and low fat dairy to offer the highest level of vitamin and minerals.

Chapter Two

Review of Literatures

Chapter Two

Literatures Review

This chapter presents a review of available literatures and researches, research studies, as they are relevant to the phenomenon underlying the present study. It is presented as the following.

2.1. Cancer

Cancer is a broad term for a large group of diseases characterized by the growth of abnormal cells beyond their usual boundaries that can then invade detached parts of the body and spread to other organs. Other common terms used are malignant tumors and neoplasms. Cancer can affect almost any part of the body and has many anatomic and molecular subtypes that each require specific management approaches (Kamil, 2019).

2.1.1. Historical Overview

A Greek physician Hippocrates (460–370 B.C.) was the first who described tumors carcinoma as karkinos (carcinos) or cancer for describing non-ulcer forming and ulcer-forming tumors the Greek used this word to refer to crab probably because the disease looks like a finger extending protrusion from a cancer similar the shape of a crab. Another Greek physician called Galen (130-200 AD), used the word oncos (swelling) to describe tumors. Today, this word is used as a part of the name for cancer by specialists and oncologists. After that Celsus who was a Roman physician (28-50 BC), transformed the word to cancer, which is the Latin word for crab(Al-hussein & Hameed, 2016).

2.1.2. Theories of Cancer:

Before thousands of years' cancer was identified by the remains of hominid fossilized that have tumors in their bone. There are many theories originated from old to ancient that describe the etiology of cancer (David & Zimmerman, 2010).

Figure: (2-1) the hominy fossils are important in the discovering and studying cancer by the presence of the tumors in the bone(Al-hussein&Hameed, 2016).

Figure (2-2): bone tumor in the human fossil related to millions year ago(Al-hussein&Hameed, 2016).

Theory of Tumors:

Hippocrates supposed that the human body consists of combinations of four biological complements, blood, phlegm, black, and yellow bile. This substance is in equilibrium state in normal conditions, while any defect at any one of these substances can lead to the development of the disease, e.g. increase in the black bile at many parts of the body can lead to develop cancer. Believing of humors lasts for about (1300 yrs) because of the religious details that prohibited the autopsies (Kagan et al.2018).

Theory of Lymph:

Lymph theory projected that cancer initiates from fluid that termed lymph. Natural life contains the essential and continuous motions of the body fluid like (blood and lymph). This theory is reinforced at (1700s) that the malignant disease frequently initiates from the lymph to other parts of the body (Al-hussein & Hameed, 2016).

Theory of Blastema:

Johannes Muller considers that cancer disease initiates from cells not from fluid at (1838 years). Rudolph Virchow (Johannes Muller student) estimates that all cancer cells initiate from other cells(Lakhtakia, 2014)

Theory of Chronic Irritation:

Rudolph Virchow suggested that the causes of cancer were related to chronic irritation, he added that the cancer can extent to further part of the body by liquid. While Thiersch opposed the belief of (spread by fluid), so he mentioned that the cancer can extent to further part of the body by the spread of malignant cells(Sudhakar, 2009).

Theory of Trauma:

Many of oncologists from the year of (1800 to 1920 s) believed that the cancer initiates from the sudden trauma in spite of failure to get cancer in animals that injured in study (Dellaire, Berman and Arceci, 2013).

Theory of Infections:

In the years of (1649-1652) two Hollandian physicians (Tulp and Lusitani) stated that the cancer spreads by the way of infections and contamination. And they suggested that the person with cancer must be isolated from the others(Javier &Butel, 2008).

2.2. Theoretical Framework.

A concept is defined as a complex mental formation of an object, property or event that is derived from individual perception and experience. A frame work is the abstract logical structure of meaning that guides the development of the study and the body of knowledge, when the frame work is a theoretical approach to the study of problems that are scientifically based and emphasize the selection, arrangement and classification of its concepts. This study is intended to evaluate the Effectiveness of an Education Program on Nurses' Knowledge regarding nutritional instructions for patients with Cancer. The frame work of the study is based on general system theory developed by Ludving von bertalanffy in 1968. As per general system theory, the system is cyclic in nature and continues

to be so, as long as the input, process, output and feedback keep interacting (Collins & Stockton, 2018).

The energy matter and information are processed through the system as inputs and released as outputs. Feedback is the one which provides information to the system or environment. Feedback may be positive, negative or neutral. In the present study these concepts can be explained as follows (Turner & Baker, 2019).

Input:

It is the process by which the system receives energy and information from environment. It may be man, resources or time. It is the energy, information and matter that enter the system through its boundaries.

In this study, nurses refer as the system with inputs from self and acquired from the environment. The input consists of age, educational status, sources of information.

Process:

It refers to the series of action by which the system converts its energy input from the environment into its products and the services that are needed to accomplish the desired task. The input absorbed by the system is processed from the output. The input which enters the system is modified within the system in such a way to get the desired output. The process is different types of operational procedures or programs.

In this study process refers to the evaluation of knowledge regarding nutritional instructions for patients with Cancer by using knowledge questionnaire. Administration of knowledge program on nutritional instructions and the post – test was done after 3 days of administration and after a month of applying the (Post-test I),of an teaching program.

Output:

It is the energy, material or information that is transferred to the environment. In this study, knowledge of nurses after administration of teaching program is referred as output. Here the output is analyzed by comparing the mean of pretest and posttest of knowledge of the participants.

Feedback:

It is the process that provides information about the systems output and its feedback as input. If the scores are more, the teaching is more effective. If the knowledge score is less being not changed it indicates the need to modify or intensify the awareness program.

Environment:

The individual's environment is the fixed constrains that may influence the effectiveness of education program on nutritional instructions.

2.3. Epidemiology of Cancer

Cancer prevalence, incidence, and death are all on the rise. Many cancer types' incidence and death climb with age through maturity and old age, with a tendency to level off at the maximum ages, according to evidence (Pedersen et al,. 2019). Globally, 14.9 million cancers cases reported in 2013. Prostate cancer (4.1 million cases), bronchus, tracheal, and lung cancer (1.3 million cases), and colorectal (1.3 million cases) were the most common malignancies in males (873,000). Breast cancer (1.8 million cases), colorectal cancer (700,000 cases), and bronchus, tracheal, and lung cancer (535,000 cases) have been the most common malignancies in women (Global Burden of Disease Cancer Collaboration, 2015). As per statistics, China had 3.586 million new cancer cases in 2012 (Asiedu, 2019)

In 2013, an estimated 8 million people died from cancer (GBD, 2018). In poor nations, tracheal, bronchus, and lung cancer had the second

highest incidence, whereas in developed countries, it ranked 4th. Western Sub-Saharan Africa has the lowest rate of incidence per 100,000 women. In Sub-Saharan Africa, there have been 1.8 million incidences of breast cancer and 464,000 deaths in 2013. The incidence of cases of cancer increased to almost 90.5 million in 2015 (GBD, 2015). In 2016, 17.2 million cancer cases were reported globally, with 8.9 million deaths. Malignancies of the trachea, bronchus, and lung, as well as colorectal cancer, were the most common cancers in men, accounting for 40% of all cancer (Torre et al., 2016).

Mortality are reported to be on the rise in the developing world, owing to increased lifespan and lifestyle change (Ghoncheh et al., 2015). Cancer is a main cause of death in all nations, but particularly in developing ones (Rawla et al., 2019) Despite many advancements in cancer treatment and prevention, cancer remains the leading cause of death worldwide (Bray et al.,2018).As of 2008, breast cancer claimed the lives of 458,503 women (13.7 %), compared to 6.0 % of males (Srivastava et al.,).

In 2013, cancer claimed the lives of almost 8 million people throughout the globe. This has pushed it up from 36th biggest cause of death in 1990 to second most after heart disease (Benjamin et al.,2017).

In Ghana, the scenario wasn't much different, yearly mortality data reported 3,659 fatalities, with a man to woman ratio of 1.2:1 (Wiredu and Armah, 2008). Breast cancer (17.24 %), hematopoietic cancer (14.69 %), liver cancer (10.97 %), and cervical cancer were the leading causes of death in women (8.47%) Males died from liver cancer the most (21.15 %), followed by prostate (17.35 %), hematopoietic organs (15.57 %), and stomach tumors (15.57 %) (7.26 %). Because of aging and living cancer-prone lifestyles, the global burden of cancer is on the rise. The chance of acquiring cancer before the age of 75 is roughly 20%, and the chance of

dying from it is approximately 10%. In 2018, there were around 18.1 million new cancer diagnoses and 9.6 million deaths globally (Ferlay et al., 2019).

Lung cancer, which caused approximately 1.76 million fatalities in 2018, was followed by colorectal cancer, which caused approximately 860,000 deaths, stomach cancer, which caused approximately 780,000 deaths, liver cancer, which caused approximately 780,000 deaths, and breast cancer, which caused approximately 620,000 deaths.

Table.2.1. Top 20 Leading Causes of Mortality in the Eastern Mediterranean Region, by Rank Estimated Number, from 2015 to 2030 (Ministry of Health of Iraqi, 2020)

Rank	2015	Rank	2030
1	Ischemic heart disease	1	Ischemic heart disease
2	Stroke	2	Stroke
3	Lower respiratory infection	3	Chronic obstructive pulmonary disease
4	Chronic obstructive pulmonary disease	4	Lower respiratory infection
5	Diarrheal disease	5	Diarrheal disease
6	HIV/AIDS	**6**	**Trachea, bronchus, lung cancers**
7	**Trachea, bronchus, lung cancers**	7	Road injury
8	Lower respiratory infection	8	HIV/AIDS
9	Road injury	9	Diarrheal disease
10	Hypertensive heart disease	10	Hypertensive heart disease
11	Preterm birth complications	11	Cirrhosis of the liver
12	Cirrhosis of the liver	**12**	**Liver cancer**
13	Tuberculosis	13	Kidney diseases
14	Kidney diseases	**14**	**Stomach cancer**
15	Self-harm	**15**	**Colon and rectum cancer**
16	**Liver cancer**	16	Self-harm
17	**Stomach cancer**	17	Fall
18	Birth asphyxia and birth trauma	18	Alzheimer's disease and other dementias
19	**Colon and rectum cancer**	19	Preterm birth complications
20	Fall	**20**	**Breast cancer**

Malignant neoplasms were the second greatest cause of mortality in Iraq

Table 2.2. Iraq's top ten leading causes of death, 2015. (Ministry of Health of Iraqi, 2020)

Rank	2015
1	Cerebrovascular diseases
2	**Malignant neoplasm's**
3	Ischemic heart disease
4	Heart failure
5	Hypertensive disease
6	Renal failure
7	Respiratory and cardiovascular disorders specific to the per-natal period
8	Operation of war
9	Transport accidents
10	Diabetes mellitus

The trend rose from 2006 to 2015, as seen by the ten-year period. According to the American Cancer Society, over 1.3 million women worldwide will be diagnosed with breast cancer each year, with approximately 465,000 dying from the disease. In 2015, it is expected that 231,840 new cases of breast cancer cancer will be diagnosed in women, with an additional 60,290 cases of in situ breast cancer expected to be diagnosed, and 40,290 women will die from breast cancer. About 2,350 men will be diagnosed with breast cancer, with 440 men dying from the disease. Breast cancer is a disease that mostly affects women, but it may also affect men (Oeffinger et al.,2015).

The overall number of new instances of cancer in 2015, as shown in Table (2.2), was 25,269, with the largest proportion among those aged 70 and older, and males outnumbering females. The male-to-female ratio was 0.8:1 in this study.

Table 2.3. Age Group and Gender Distribution of New Cancer Cases, Iraq, 2015 (Ministry of Health of Iraqi, 2020)

Age Group	Male		Female		Total	
	No.	%	No.	%	No.	%
0 - 4	393	1.5	266	1	659	2.5
5 - 9	259	1	214	0.8	473	1.8
10 - 14	224	0.8	200	0.7	424	1.5
15 - 19	278	1.1	237	0.9	515	2
20 - 24	306	1.2	380	1.5	686	2.7
25 - 29	305	1.2	469	1.9	774	3.1
30 - 34	398	1.5	677	2.7	1,075	4.2
35 - 39	441	1.7	882	3.5	1,323	5.2
40 - 44	527	2	1,295	5.1	1,822	7.1
45 - 49	747	2.9	1,559	6.2	2,306	9.1
50 - 54	874	3.4	1,642	6.5	2,516	9.9
55 - 59	875	3.5	1,277	5.1	2,152	8.6
60 - 64	1,542	6.1	1,648	6.5	3,190	12.6
65 - 69	1,336	5.8	1,174	4.7	2,510	10.5
70+	2,693	10.7	2,134	8.5	4,827	19.2
unknown	7	0.02	10	0.03	17	0.05
Total	11,205	44.4%	14,064	55.6%	25,269	100%

In 2015, the incidence and prevalence rate of new cancer cases by provinces were stratified by gender. The largest proportion was in Baghdad and the lowest in Muthanna, whereas the highest occurrence was in Karbala and the lowest in Anbar, as shown in Figure 2.4 (Ministry of Health of Iraqi, 2020)

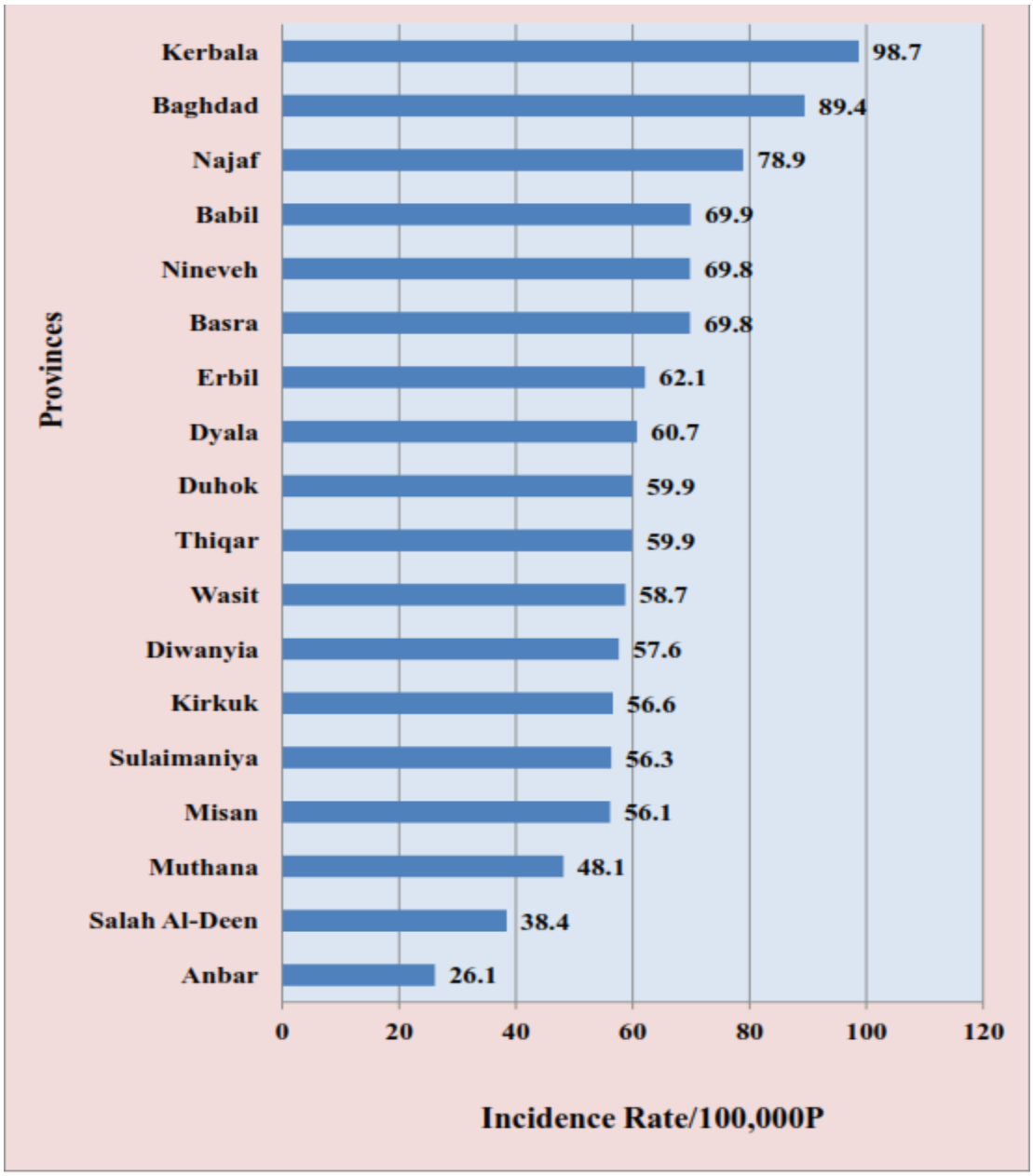


Figure.2.3. Iraq, 2015. Rate of Incidence (Per 100,000 Population) of New Cancer Cases by Provinces.

Cancer is one of the leading causes of death after cardiovascular disease in America; over 560,000 people died from a malignant process in 2008 (Vasto et al., 2009). Nearly 12 million of Americans cancer patients were alive in 2008, and about 1,638,910 new cancer cases have been diagnosed in 2012, which does not include carcinoma in situ (noninvasive cancer) of any site except urinary bladder, and does not include basal and squamous cell skin cancers, which are not required to be reported to cancer

registries. About 577,190 Americans are expected to die of cancer, by the end of 2012 (Siegel et al,. 2012).

In 2020, an estimate 19.3 million new cases of cancer (18.1 million omitting non - melanoma skin cancer) would be diagnosed worldwide, with around 10.0 million cancer - related death (9.9 million omitting non - melanoma skin cancer). With an expected 2.3 million new cancer cases (11.7 %), female breast cancer has superseded lung cancer as the most often detected malignancy, followed by lung (11.4 %), prostate (7.3 %), colorectal malignancy (10.0 %), and stomach malignancy (7.3 %). Lung malignancy is the main cause of mortality, with an expected 1.8 million death (18%), following by colon malignancy (9.4%), hepatic malignancy (8.3%), gastric malignancy (7.7%), and breast malignancy (6.9%). Overall, the prevalence of both sexes was two- to three-fold higher in transitioned compared. transitional countries, but death ranged two-fold for males and marginally for females. Transitional nations, on the other hand, had much higher rates of female breast and cervix cancer death than transitioned countries. Due to demographic changes, the global cancer burden is expected to reach 28.4 million cases in 2040, up 47% from 2020, with a significant rise in transitioning (64%) than transitioned (32%) countries, though this may be exacerbated further by rising risk factors accompanying with internationalization and economic growth. Efforts to build a sustainable construction for the spreading of cancers prevention measures as well as the providing of cancer care in transitional countries are critical for worldwide cancer control (Sung et al., 2021).

2.4. Pathophysiology

Cancer is a broad term for a group of disorders manifested by abnormal cell proliferation with the potential to infiltrate or spread to other regions of the body (WHO, 2018). It's a tissue-growth disorder. The genes that drive cell development and differentiated should be altered in order for

a normal cell to become a cancer cell , Cancer cells are a kind of tumor cell that has stem cell characteristics and may develop and proliferate, Proliferative signal sustenance, targeting growth suppressor, invasions and growth activation, immune system evasion, blood vessel development, and refusal to die are all characteristics of cancer cells, Almost all malignancies have the potential to spread (Al-hussein & Hameed, 2016).

The spread of cancer to other parts of the body is known as metastasis. Metastatic tumors are cancer cells that have migrated beyond their original location, while primary tumors are cancer cells that have not spread beyond their original location. The majority of cancer fatalities are caused by metastasized cancer(Seyfried & Huysentruyt, 2013). Because stem cells share many characteristics with cancer cells, they have been proposed as the target cells from which cancer arises. Inborn genetic abnormalities are responsible for around 5-10% of malignancies (Anand et al., 2008).

Obesity, poor nutrition, physical inactivity, and excessive alcohol use are all disease risk factors; some malignancies have been linked to a family history of the disease. Only first-degree relatives or a family history of near relatives were used to estimate cancer risk in people (Kushi et al., 2012).

Women with a first-degree genetic history of endometrial or colon cancer had a higher chance of developing endometrial cancer, according to a research done by Win, Reece, and Ryan (2015), According to another research, estimations for first-degree family history of breast cancers among African American women vary from 1.65 to 1.78. (Bethea et al.,2016). Prostate cancer is more likely in those who have a family history of the diseases. A high risk factor for stomach cancer is a family history of the disease, Even though most stomach cancers are

unanticipated, around 10% of them have a family history (Yusefi et al.,2018).

2.5. Etiology and Risk Factors of Cancer.

The main causes of the malignant disease are unknown. Virus and bacteria, occupational exposure, chemical agents, genetic or family factor, nutritional factor, and hormonal agents are all examples of agents or variables implicated in carcinogenesis (Brunner, et al., 2010).

Viruses:

Many infectious agents are considered to be causes of cancer in humans. Viruses can inter in the genetic structures of the cells, which lead to change in the future that possibly cause malignant disease. About 4.9% for Hepatitis B & C viruses, 5.2% expected of the viruses of (human papilloma), about 1% of (Epstein-Barr), for both herpes and HIV approximately (0.9%) (Sudhakar, 2009).

Bacteria:

The relationship between the cancer and the bacteria is uncertain. The ulcer inflammation that continues for long time caused by long activity of bacteria which can lead to malignant disease, like in (Helicobacter Pylori) that causes gastric ulcer and the connection with cancer is found in the patient with gastric cancer (Huether & McCance, 2019).

Physical Agents

Many physical factors can be related to a carcinogenesis like, inflammation or chronic irritant, cigarette smoking, and frequent exposure to the sunlight and radiation(Brunner, 2010).

1-Cigarette Smoking

Smoking is a main leading cause for many health problems and in developed countries it is the first reason for cancerous diseases (DeVita, et al., 2015). Tobacco smoking is the leading cause for many cancers such as lung, nasopharynx, adenocarcinoma, kidney carcinoma, sinuses

malignancies, myeloid leukemia, liver, cervical, and gastric cancer (Sasco et al.,2004).

2-Radiation

The prolonged exposure to great amount of ionizing radiations with ultraviolet ray including, X-Rays, Ultra violet rays, and the (α, β, γ) rays are increasing the possibility of malignant disease. The ionizing radiation play a major role in developing of melanoma (skin cancer) and leukemia (Richardson , et al., 2015).

3-Irritants

The frequent exposure to irritant substances like pipe or smell the smoke lead to a local cancer, the moles that irritated by contaminated clothes with chemical substances can develop to malignant disease. Also Asbestos that present in the high temperature were recognized leading to cancer of the lung (Williams & Hopper, 2015).

Chemical Agents:

Approximately (75%) of total cancer are expected to be associated with environment. The high toxicity of many dangerous chemical e.g. products of petroleum and tobacco tar, have a particular effect on the DNA structure in the cell which causes genetic changes at many parts of the body like the lung, liver and kidney throughout the time because of their function in removing of toxic chemical (Stephens *et al.*, 2009).

Hormones:

The disturbances of hormones in the human body can lead to develop some kinds of cancer disease. The breast cancer is more commonly considered to be affected by the prolonged using of the estrogen hormone so the breast and uterine cancer patient are mainly tested for the influence of two hormones of (Estrogen & Progesterone). The imbalances in these two hormones could be accompanied with the cancer of the ovaries, breast,

vagina, and uterine. If there is a doubt that malignancy of the breast is diagnosed, it needs to be verified for the positive effects of these two hormones. Several epidemiological studies show positive associations of insulin growth factor (IGF) levels with risk of prostate cancer(Rowlands et al., 2009; Williams & Hopper, 2015).

Diet:

Nutrition is considered as a great influence on the leading and inhibition of the cancerous disease. The consumption of large amounts food that have large quantities of (trans fatty acids, saturated fatty acids, sophisticated sugars and flour that found in many fast food or others) can be related to the development of the malignant disease. This food involves (the red meat is mainly connected with the cancer of colon, also the food with deficiency in vitamins such as (A,C,E) may lead to develop of many cancerous diseases in such organs (Breast, Lung, Oropharynx, and Cervix) (Anand, et al.,2008).

Genetics

There is great relationship between developing cancer and other factors like genetics, lifestyle factors, environmental. Also explore the roles of lifestyle and genetic susceptibility in the occurrence of cancer. Cancer is highly affected by the change in the patterns of the chromosomes, genetic mutations or chromosomal displacement. The malignant disease may be gathered in some families including (father, mother, brothers and sisters). The breast cancer in women's who have mother or her sisters complain from breast cancer have more possibility to develop with this disease. Also the man that his father or brothers complain from prostate cancer may be at risk in the progress of the disease (Pastinen et al., 2004).

2.6. Clinical manifestations:

There are no specific manifestations related to malignant disease because it depends on the location and type of cancer and related to degree of damage that happened. Generally malignant disease leads to weakness, anemia, and pain at advanced stage and weight loss (because of blockage, anorexia and dysphagia) (Al-hussein & Hameed, 2016).

2.7. Cancer diagnosis and staging

Diagnosis of cancer may be investigated through different methods:

- **Laboratory finding** for (blood, stool, and urine) to indicate any abnormalities that leads to malignancy.
- **Imaging procedures:**
  - Magnetic resonance imaging (MRI)
  - Computed tomography (CT) scan
  - Ultrasound (US)
  - X-Rays and
  - Endoscopy investigation

These investigations are indicated to identify the tumor size and site and symptoms detecting (the cancer symptoms are greatly associated with the tumor sites by making defects in the area of organs that tumor locate such as blockage, loss of organ functions, secreting of active enzymes of malignant cells, pressure on the vessels and continues pressure on nerves. Individual who are expected to develop malignant disease after investigation methods should be undergone general examination, I; to detect the presence and stage of tumors, II; to detect the expected tumor metastatic and spreading to other parts of the body, III; to assess the functional defect in the affected or non-affected organs, IV; to achieve cells and tissue specimen to investigate the stage and degree of the malignant tumors (WebMD, 2016).

Many investigation approaches are found to categorize the degree of the malignant disease. In case of cancer in situ, using a 4-stage system as follows:

- **Stage one:** the malignant disease remains in the limited organ source,
- **Stage two:** the malignant disease is spread locally,
- **Stage three:** the malignant disease invades the local structure such as lymph node and blood vessels,
- **Stage four:** the malignant disease that are invade to distance area, such as the cancer of liver spread to lung or prostate cancer spread to the bone marrow (Kelly Power et al., 2022).

The classification system of tumor, node, and metastasis (**TNM**) which is used commonly:

***** Degree of the primary tumor symbolized by (T):

-The symbol of (Tx) means that the P.T cannot be evaluated.

-The symbol of (T0) includes that there is no indication of P.T

-The symbol of (Tis) means carcinoma in situ

-The (T1, T2, T3 and T4) means extent of regional and increasing in the primary tumor.

******Absence or existence spread of the regional lymph node are symbolized by (N):

- The symbol of (Nx) means that the regional L.N cannot be evaluated.
- The symbol of (N0) means that there is no spread of R.L.N.
- The symbols (N1, N2 and N3) means the more regional lymph node included.
- The symbol of (M) means the existence and absence of spreading:
- The symbol of (Mx) means the spread distance cannot be evaluated.
- The symbol of (M0) means there is no distance spread.

In addition to that the (TNM) numerical subsets explore the progressive extent of the cancer(Edge & Compton, 2010).

2.8. Cancer Treatment:

The patients and family must understand without doubt the management's selection and objectives. Different methods are for the malignant disease treatment, involving radiotherapy, surgical procedure, chemotherapeutic agents and targeted management are used for different type of cancerous disease (Brunner, 2010).

The chemotherapy management methods used for malignant disease must be depending on the treatment objectives for any cancerous disease. The objectives of chemotherapeutic treatment involve cure the (complete elimination of the disease), control the (decreasing the growth of malignant cells) or palliation (decrease the symptoms related to cancer)(Stupp et al., 2012).

2.8.1. Radiation Therapy

Radiotherapy was the highly effective method of the treatment of malignant tumor beside the surgical procedure particularly in the 1st half of the 22nd century. The radiotherapy procedure is used to damage the malignant cells by releasing adequate energy to destroy the DNA of the cells with decreasing the injury to the normal structure of the cells. Treatment with the radiation may be fatal, it means the cells that are treated with the radiation; possibly fatal because the great alteration in the cells surrounding area will lead these cells to die. In many cases the destroying that does not lead to kill the cells completely may recover itself in future. Radiotherapy is convenient to be used in the treatment of the local disease that is present in specific area of the body that is difficult to reach by surgical procedure, for example (brain tumor or pelvic tumor) (Papac, 2001).

2.8.2. Surgery

The surgical procedure is the best treatment for removing the malignant tumors that expected not spread to other parts of the body after surgery. Surgery also suggests decreasing symptoms, for instance, those caused by tumor mass obstruction. In addition, the surgical treatment indicates to prevent the developing of the disease, such as in case of mutations breast cancer which has particularly high risk of breast cancer and ovarian and usually select the protective mastectomy or removing ovaries & fallopian tubes (salpingo-oophorectomy) or both. The key principles applied specifically to cancer surgery involve adequate surgical resection to avoid the recurrences of the malignant disease(Huether & McCance, 2019).

2.9. Chemotherapy

The chemotherapeutic agents basically mean the use of the cytotoxic substances to destroy malignant cells or to decrease the cell growth. It works by destroying rapid cells division. These divisions of malignant cells are affected with these medications. Chemo is a term which usually means the cytotoxic agents, and these agents are used in the treatment of malignant disease (Awad &Mohammed, 2016).

Chemotherapy is applied to destroy cancer cells that metastasize to different parts of the body. Over (100) various types of cytotoxic agents are utilized. It may be used with radiotherapy and surgical procedure to destroy and remove the malignant cells at specific sites of the body. Chemotherapeutics agent goal is to cure the patients with malignant disease by decreasing the growth of cancer cells, preventing them from spreading, and relieving the presence symptoms (Jassim & Muhebes, 2021).

Whenever a tumor is exposed to a chemotherapy drug, taking into consideration the type and dosage of cytotoxic agents around (20% - 99%) tumor cells is destroyed. The chemotherapeutic agents are required to administer recurrently through selected time to attain better damage. The complete eradication of the tumor cells is difficult. So the main objective of the chemotherapeutic agents are to remove the adequate amount of tumor as possible and the residual cancer cells can be damaged via the immune system of the body (Salih, 2019).

To know how the chemotherapy kills the cells, we have to understand the cell cycle. the body tissue consists of cells. These cells can be developed and duplicated to exchange the damage or by destroying cells by processes take place called cell cycle. the duplication of malignant and normal cells based on the cell cycle manner. The time that needed for each cell to divide in to 2 new cells is called (cell cycle time). The cell cycle consists of 4 different phases, every phase has their important function (Kamil, 2019) .

The cell cycle is divided into phases that span the time between the middle of mitosis and the end of mitosis in a new cell(Brunner, 2010)..

1. G1 phase: synthesis of protein and RNA, this phase lasts about 8 or more hours
2. S phase: DNA synthesis, this phase lasts about 6 to 8 hours.
3. G2 phase: It also called pre-mitotic phase in which the synthesis of DNA is done. The G2 phase takes two to five hrs.
4. Mitosis: in this phase division of cell occur.

Following mitosis and throughout the G1 phase, cells can enter the G0 phase, often known as the resting or slumber phase. During G0 phase, the serious cells which are potential copying and not divided actively. Certain chemotherapeutic medicines (as well as several other

types of treatment) are timed to coincide with the cell cycle (Brunner, 2010).

2.10. Physical Problems Related to Chemotherapeutic Drug:

2.10.1. Neurological Problems:

Chemotherapy more commonly causes peripheral neuropathy, the defect in the nerve that leads to tingling, pins and needles, burning sensations, weakness, and numbness in the upper and lower extremities. Often, nerve damage is temporary; it will usually get better, but it can take time. In addition to that, the patient may suffer from headache, lack of physical activity and the ability to concentrate(Marchettini et al., 2006).

2.10.2. Musculoskeletal Problems:

The cytotoxic drugs have effects on the musculoskeletal system by the weakness of muscle and bone suppression that lead to joint and back pain and in many cases lead to fractures. Patient feels tired in most time(Solomon et al., 2010).

2.10.3. Gastrointestinal Problems:

Nausea and vomiting is considered as the main annoying physical problems related to cytotoxic drugs. Some people experience nausea and vomiting within the first few hours of receiving chemotherapy. Suffering from nausea and vomiting may remain for many days in some cases. The patient also can suffer from lose appetite that result from many complications in the oropharynx and change in the taste. The cells that line the digestive system may be also affected by chemotherapeutic agent that leads to diarrhea. It is also accompanied by pain and cramping. Some people become constipated because of chemotherapy drug, decreased in their activity, changes in the diet, or related to using some analgesic treatment (Jassim & Muhebes, 2021).

2.10.4. Respiratory Problems

Some patients may experience repeated infections of the tonsils, pharynx, and recurrent chest infections. Patients may experience coughing frequent sputum and respiratory allergic reactions suffering from cough(Al-hussein & Hameed, 2016).

2.10.5. Cardiovascular

Patients undergo chemotherapy in many cases may have increased in heart rate and blood pressure, also sometimes lead to chest pain which spread to neck, shoulder and arm (Curigliano *et al.*,2016)

2.10.6. Hematologic Problems

Because of the highly toxicity characteristics of the chemotherapy drugs, it leads to damage of the blood cells that makes patient more commonly suffer from fatigue without effort as a result of anemia. Exhausted feeling is the main problems of chemotherapeutic drugs. It can vary from the mild to severe feeling of exhausting. Similar to many other physical problems related to cytotoxic drugs, it typically disappears over the time after stopping taking of chemotherapeutic treatment. In addition to that, the patient who suffer from anemia, epistaxis and exposure to infection easily because of the damage to WBC which an important part of immune defense system(Verma et al., 2015).

2.10.7. Genitourinary Problems

The cytotoxicity of chemotherapeutic agent can damage the kidney and bladder that lead to temporary or permanent defect, as well as it can lead to change in urine color or its odor. Temporary the Chemo can affect the sperm cells by decreasing their number, or causing other changes. also, cytotoxic drugs can harm ovarian system and decrease the hormones that are produced by it. So, it can lead to many defects as, the menstrual periods which may become irregular or stop during treatment. Some people suffer from decreasing in their sexual interesting as a result of the physical

and psychological worries related to disease and therapy (Jassim & fakhria, 2021).

2.10.8. Skin Problems

Hair loss and changing the strength of hair is often one of the more embarrassing features of cancer treatment. Some chemotherapy medications perhaps make the skin of the cancer patient highly sensitive when exposure to sun light. Patient may experience redness and pimples of face, acne, and skin infection (Verma et al., 2015).

2.10.9. Vision

Vision disturbances occur as a result of highly toxicity of chemotherapeutic drug, and may cause damage to eye nerve. Patient may experience eye pain and eye socket (Medline Plus, 2016; Skidmore-Roth, 2015).

2.10.10. Endocrine

Patient undergoes chemotherapeutic agent may experience face lunar and obesity behind the neck, abdomen and shoulders in some cases. In less common cases, it may lead to elevated blood sugar (The American Society of Health-System Pharmacists, 2012).

2.11. Nursing management of major complications for patient with cancer undergoing chemotherapy:

2.11.1. Neurological complications:

- Extra careful with sharp objects. Wear gloves for yard work or when working with tools.
- If symptoms involve the feet or legs, walk slowly and carefully, put no-slip mats in the shower or tub.
- If there is severe numbness in the feet, be sure to inspect them every day for cuts, injuries, and infection.
- Temperature sensitivity can also be a problem.
- Check the air temperature before going outside in winter.

- Apply an ice pack on the hands or feet, but only for less than 10 minutes at a time with at least 10 minutes of breaktime between each repeat application.
- Don't wear tight clothes or shoes that interfere with circulation.
- Avoid alcoholic beverages. Take all the medications as directed.
- Get plenty of rest while in treatment (Colloca et al., 2017).

2.11.2. Respiratory system.

- Avoid massive crowds to keep away from sick people during the cold and flu season.
- Wash your hands frequently, particularly after shaking hands, touching food, using the toilet, or handling animals.
- Shower every day to keep your body safe. Since showering, keep skin hydrated with lotion or oil to avoid drying and cracking.
- Wash fruit and vegetables thoroughly (Jassim & Muhebes, 2021).

2.11.3. Gastrointestinal System problems:

2.11.3.a. Nausea and vomiting:

- Eating smaller meals more often.
- Drink plenty of water and fluids.
- Staying away from heavy odors.
- Avoiding sweet, spicy, oily, or heavily salted foods.
- Eating comfort meals that have always helped avoid nausea.
- Taking antinausea medication before eating.
- Certain individuals benefit from deep breathing and calming methods (including listening to music, reading a book, or praying). (NCI, 2020).

2.11.3.b. Diarrhea:

- Consumption of a clear liquid diet (one that includes water, apple juice, weak tea, peach or apricots nectar, popsicles, clear broth, and gelatin

with no solid added). Tomato juice, orange juices, and carbonated soft beverages should be avoided.

- Eat and drink non-sodium (salt) foods such as soups, crackers, broths, sports drinks, and pretzels, as well as foods high
- in potassium (including bananas, apricots, potatoes, and sport drink).
- For each loose bowel movement, drink at least 1 cup of fluid.
- Eating easy-to-digest foods include rice, applesauce, low-fat cottage cheese, bananas, yogurt, potato salad, and dry toast in small doses.
- Avoid milk or milk products if they seem to make diarrhea worse.
- Pastries, rich desserts, candies, jellies, and sauces can all be avoided.
- Limit the intake to high-fat foods such as fried and oily foods.
- Almonds, seeds, whole grain, legume (bean and pea), dried fruit, and fresh fruits and vegetable can all be avoided. (ACS, 2020).

2.11.3.c. Constipation:

- Bananas, cheese, beef, and eggs are all ingredients that can cause constipation.
- Drink plenty of water to avoid constipation (approximately 8 to 12 glass per day).
- Whole-grain bread and cereal, rice, fresh raw vegetables, fresh raw fruits or fried fruits with the peel on, dates, apricots, dried fruits, prunes, seeds, popcorn, and nuts are also high-fiber foods.
- Doing exercise, it can stimulate digestive systems(Roila et al., 2010).

2.11.3.d. Poor appetite:

- Providing 6 to 8 small snacks and meals per day to the patient.
- Pair high-protein foods like fish, shrimp, meats, eggs, turkey, cheeses, milk, almonds, tofu, peanut butter, cream, peas, and beans with starchy foods like pizza, pasta, or potatoes.

- Keep cold liquids and juices in easy reach of the patients. If the patient is bothered by food smells, eat bland meals cold or at room temperature.
- If the patient refuses to feed, propose milkshakes, fruit smoothies, or liquid meals.
- If the patient is affected by sour or metallic flavors, use plastic knives and forks instead of metal (ACS, 2020).

2.11.3.e. Genitourinary System:

- The nurse will collect urine and blood tests to determine how well the bladder and kidney are doing.
- Drink lots of water and avoid caffeinated beverages such as chocolate, cola, and black tea.
- Ask the doctor or nurse if it's safe to have sex while doing chemotherapy; it's critical not to become pregnant while undergoing chemotherapy.
- Do not wear tight pants or shorts and wear cotton underwear to avoid infection(Jassim & Muhebes, 2021).

2.11.3.f. Musculoskeletal System

Fatigue:

- The most effective approach was to get some rest.
- Resting, on the other hand, took several forms: lying at home silently, going on holiday, taking more breaks, and sitting down more often.
- Light activities.
- lying down and sometimes resting, napping, stretching their usual sleep spans by going to bed early and/or waking later, and remaining in bed nearly nonstop for the first week following chemotherapy (Spichiger et al.,2012).

2.11.3.g. Integumentary System complications

1. Hair:

- Include hair loss management ideas and techniques, as well as sensitively reinforcing regrowth messages.
- Keep the hair and scalp washed, and use a big comb to carefully comb the hair.
- In the sun, wear sunscreen or cover the head with a cap or scarf (Roe & Lennan, 2014)

2. Skin:

- The nurse must remind the patient of the importance of using sunscreen.
- Avoiding dry-skin-causing practices and materials (e.g., hot water, alcohol-based cosmetics).
- Increasing the hydration of the skin (bath oils, etc.).
- Using alcohol-free moisturizer creams on a regular basis.
- Utilizing tocopherol gel or oil as a supplement.
- Avoid wearing shoes that are too tight (Pinto et al., 2011).

2.11.3.L. Circulatory System Problems

1. Anaemia:

- If anemia is caused by a lack of nutrients, the doctor can prescribe vitamins. Iron, folic acid, and vitamin B12 are examples.
- Red meat, dried apricots, beans, almonds, enriched bread, broccoli, and cereal are all good sources of iron.
- Asparagus, spinach, broccoli, lima beans, fortified bread and cereal are also abundant in folic acid.
- Take all prescribed medications, such as Epoetin alpha or iron supplements, as directed (Al-hussein & Hameed, 2016).

2. Bleeding:

- Use a soft toothbrush to brush your teeth and avoid using dental floss or toothpicks.
- Kindly blow the nose to avoid using sharp things.
- Do wear sneakers, even within the house or in the hospital, to prevent any potential bleeding injuries (Hayder & Mohammed, 2018).

2.12. Nutrition

Based on Maslow's hierarchy of needs, food and nutrition rank on the same level as air in the basic necessities of life. Obviously, death eventually occurs without food. But unlike air, food does so much more than simply sustain life. Food is loaded with personal, social, and cultural meanings that defi ne our food values, beliefs, and customs. That food nourishes the mind as well as the body broadens nutrition to an art as well as a science. Nutrition is not simply a matter of food or no food but rather a question of what kind, how much, how often, and why (Nejatinamini, 2019).

Merging want with need and pleasure with health are keys to feeding the body, mind, and soul. Although the dietitian is the nutrition and food expert, nurses play a vital role in nutrition care. Nurses may be responsible for screening hospitalized patients to identify patients at nutritional risk. They often serve as the liaison between the dietitian and physician as well as with other members of the health-care team. Nurses have far more contact with the patient and family and are often available as a nutrition resource when dietitians are not. Nurses may reinforce nutrition counseling provided by the dietitian and may be responsible for basic nutrition education in hospitalized clients with low to mild nutritional risk. Nurses are intimately involved in all aspects of nutritional care (Dudek, 2013).

Believing these needs are fluid, an individual might be focused on multiple levels of needs at any given time but only once a level is met can the individual move on to the next level. The hierarchy of needs (Maslow, 1954) was basically a model of psychological health based on the idea of fulfilling innate human needs. The more needs a person fulfilled, the higher his/her level of life satisfaction. Years later, Maslow (1962) wrote his second part of historical work focusing on the psychology of being that built upon his prior theory and introduced new ideas from which was derived a theory of quality of life, which is still considered a conceptual theory of quality of life by modern psychology experts today. Weight loss could then increase the morbidity and mortality associated with cancer treatment. Thus, proper nutrition counseling must be part of the cancer treatment plan(Ge et al., 2019).

Furthermore, understanding the factors related to the nutritional status of gastric cancer patients would provide evidence that guides the clinician and nutritionists to provide advice and timely nutritional interventions beneficial to the patient. Cancer and its treatments could cause side effects that impact diet, which is an important part of cancer treatment. Eating appropriate foods before, during, and after treatment would help patients feel better and enhance the life quality for cancer patient, especially those with gastric cancer. For these reasons, this study was conducted to determine the impact of nutritional status on the quality of life of gastric cancer patients (Mulazzani et al., 2021).

2.12.1. Malnutrition

Malnutrition is a frequent complication in cancer patients that negatively affects the outcome of treatments. Consuming a balanced diet of adequate daily energy is difficult for cancer patients, especially during chemotherapy and/or radiotherapy because of the experience of frequent

nutritional impact symptoms such as nausea, vomiting, dysphagia that interfere with food intake. Characterizing nutrients that may become limited during cancer treatment is important emerging research area with few trials performed in humans. Identifying these limited nutrients is of importance in various aspects including compromised immune function, higher risk of treatment induced-toxicities and decreased survival (Carr A et al., 2017).

Malnutrition a common and serious problem in patients with cancer, as between 15% to 80% of all patient experiencing significant loss of weight during disease and treatment. The consequences of weight loss are muscle loss and impaired functioning, impaired immune system inducing infections, as well as psychological consequences, including depression, isolation and reduced quality of life (Silander et al., 2013).

Patients suffering from weight loss have reduced ability to complete the prescribed treatment. In radiation therapy and chemotherapy, it has been shown that poor nutrition conditions often lead to postponement or discontinuation of treatment, thus reducing the strategic effect of treatment. Poor nutritional status specifically contributes to poor outcomes. From literature, we know that even a smaller weight loss has significant consequences for the patient's treatment efficiency, and the larger weight loss, especially the loss of muscle mass, the higher risk to survival (Martin et al., 2015).

Nutrition intervention and individual follow up has revealed to enhance life quality and clinical outcomes in short and long term. However, early intervention, individual patient involvement and thus compliance, treatment of nutrition impact factors and interdisciplinary collaboration, seem to be crucial in order to achieve success (Granda-Cameron et al., 2010).

It is therefore crucial that an individually adapted nutrition course is initiated at a very early stage. Likewise, it is significant that attention to the patient's dietary state and the changing alternate need for nutrition therapy is continued throughout the entire course of treatment as well as followed up during rehabilitation (Bozzetti et al.,2009).

Equally it is shown that nutrition and exercise are considerably coherent factors, and that patients who often cease to be physically inactive in order to save their strength, have greater muscle loss, and thus also harder to exploit the nutrition consumed efficiently. By counseling patients to eat the adequate and proper diet and inverting medical nutrition therapy in due time, as well as maintaining strength and activity, one may contribute to reduce, the number and severity of complications, as well as shorten the disease and rehabilitation process. However, studies have shown that practices regarding nutritional advice and therapy during the course of cancer are insufficient (Nourissat et al.,2008).

People suffering from cancer and disease-related malnutrition may need to change their perception of food and their food culture in order to be able to eat sufficiently during a disease that affects the desire and ability to eat. For example, patients with cancer and disease-related malnutrition may normally aim to live a healthy life in order to prevent type 2 diabetes or cardiovascular problems, just as other people ought to do when healthy. Patients may therefore have to override the food and health perception and experience of proper healthy eating habits they have acquired, in order to fulfill nutritional requirements, when the ability to eat is lacking factors that may be involved in the etiology of illness-related malnutrition (Parker et al., 2017).

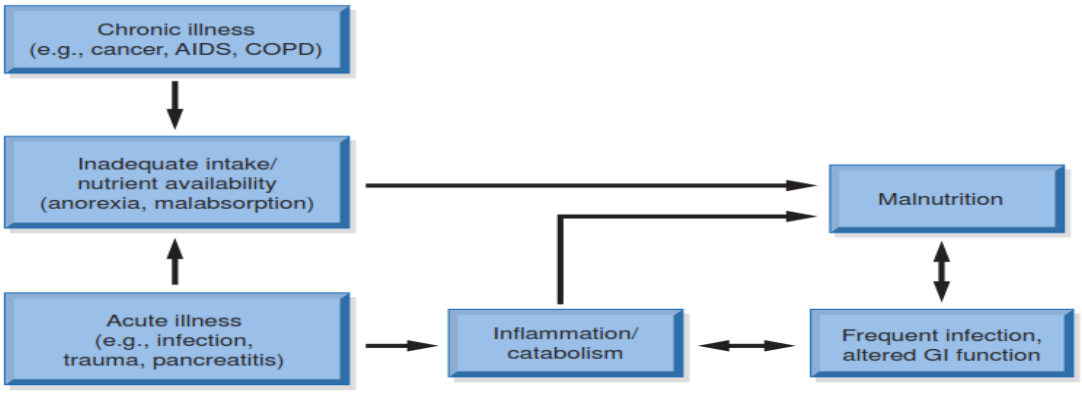


Figure 2.4variables that may have a role in the genesis of malnutrition caused by illness (Fitch & Keim, 2012).

2.13. Nutrition and Nursing Process

Component of nutrition process may be the "assessment data, diagnosis, plan, implementation, and evaluation (Dudek, 2013).

2.13.1. Assessment.

Malnutrition is well acknowledged as a significant cause of sickness, death, poor life quality, and longer hospital admissions (White et al., 2012).

Unfortunately, there is no one, globally accepted approach for assessing or diagnosing malnutrition at the moment. Strategies differ greatly and may lack specificity (the ability to diagnose just those who are malnutrition) (misdiagnosing a well-nourished person). Pre-albumin and Albumin, for example, that utilized as malnutrition diagnostic indicators. These proteins are currently classified as negative acute phase protein, meaning that their level drop in response to pathogens and metabolic stress. Because these levels are not specific for nutritional status, their failure to rise with nutrition repletion does not imply that nutrition treatment is unsuccessful (Tucker et al .,2008).

These protein can assist diagnose individuals at high risk for mortality, morbidity, and malnourished, despite their poor use in diagnosing malnutrition (Dwivedi et al .,2006).

2.13.2. Diagnosis

A nursing diagnosis is defined by NANDA International (2013) as a clinical judgment concerning a human response to health conditions/life processes, or vulnerability for that response, by an individual, family, group, or community, a diagnosis is determined. In hospitals and long-term care institutions, nursing diagnoses offer written evidence of the condition of client and serve as a foundation for the follows care plan. When the problem is a redacted to nutrition and metabolism pattern, the diagnoses are directly related to nutrition. Other nursing diagnoses, although not specifically related to nutrition, can include nutrition's as part of the treatment strategy, like educating the patients how to rise fiber intake to alleviate constipation (Astuti etal., 2015) .

1. Weight Change

Unintentional weight loss has been shown to be a reliable sign of malnourished, after calculating the %age of normal body weight loss in a specific length of time, the significance of weight change is assessed (Table 2.4). Weight fluctuations are usually the result of long-term, rather than short-term, changes in dietary status. Due to hydration state, the patient's weight may be inaccurate or invalid. Weight gain may be caused by anasarca, edema, heart failure, fluid resuscitation, and chronic renal or liver disease (White et al., 2012).

Table 2.4 %Age of weight change calculation and evaluation.

Calculating Percent Weight Change

$$\%\ \text{weight change} = \frac{(\text{usual body weight} - \text{current body weight})}{\text{usual body weight}} \times 100$$

Significant Unintentional Weight Loss

Time Period	(% of Weight Lost)
1 week	>2
1 month	>5
3 months	>7.5
6 months	>10

Body mass index is a measurement of a weight of person in proportion to their height that is utilized to determine the relative risk of weight-related health issues. Actual measurements, not guesses, should be used wherever feasible to guarantee accuracy and dependability since measuring height and weight is generally fast and straightforward and takes little expertise. Only utilize a patient's reported weight and height if there are no alternative possibilities.

Table 2.5. Body Mass index Interpreting

Interpreting BMI	
18.5	Underweight
18.5–24.9	healthy weight
25–29.9	overweight
30–34.9	obesity class 1
35–39.9	obesity class 2
> 40	obesity class 3

Body mass index ranges from 18.5 to 24.9, which is considered healthy or normal. Increased health hazards are linked with values above and below this range. One disadvantage of BMI is an individual can have a high BMI but be malnutrition in some components if their intake is unbalanced or if their nutritional needs are high and their consumption is inadequate(Dudek, 2013).

2.Dietary Intake

When compared to the patient's typical consumption, a reduction in intake may suggest nutritional danger. Validity and dependability, like with other data, may be a concern. Is it possible that the kind or quantity of food you consume has lately changed only drinking liquid and excessively restricting the kind or quantity of food consumed are both dangers? Many individuals associate diet with weight reduction, and they may overlook the fact that they utilize nutritional therapy to avoid salt, reduce fat, or count carbs. A better inquiry would be: Do you have any dietary intolerances? or

do you keep any kind of food diary? Even the word food conjures up a stereotyped mental image(Kohut, 2014).

3. Physical Findings

Subcutaneous adipose losses in the triceps and chest, muscular wasting in the quadriceps and deltoids, ankle edema, sacral edema, and ascites are all signs of malnutrition. On a scale of one to 10, these aberrant results are categorized as mild, moderate, or severe. Other physical signs of malnutrition are listed in Table 2.5. Most physical symptoms are not diagnostic because determining what is normal vs. abnormal is subjective, and malnutrition symptoms can be nonspecific(Fessler, 2008).

For example, dry hair, dull, could be caused by a severe proteins deficit, excessive sun exposure, or the use of hair colorants. Furthermore, due to genetic and environmental differences, the severity of physical signs and symptoms of malnutrition varies among population groups. Finally, physical findings are only seen in cases of overt malnutrition, not in cases of subclinical malnutrition.

Furthermore, due to genetic and environmental differences, the severity of physical signs and symptoms of malnourishment varies among population groups. Finally, physical findings are only seen in cases of overt malnutrition, not in cases of sub - clinical malnutrition(Banh, 2006).

2.13.3. Planning: Client Outcome.

Client-centered outcome, or objectives, must be quantifiable, achievable, and focused on the clients. How do you evaluate your progress toward a broad objective of gaining weight by eating better? Is it preferable to boost calories by adding butter to meals or to substitute 1 % milk for full milk since it is healthy heart? Is a one-pound growth in a month okay, or is a one-pound gain every week preferable? Is it possible to lose one pound

per week if the customer has an increased metabolism and catabolism as a result of third-degree burns (Guenter et al ., 2022).

Client-centered outcomes concentrate on the clients rather than the healthcare practitioner, and they describe the client's destination. Allow the client to actively engage in goal-setting whenever feasible, even if the client's assessment of needs varies from yours. When it comes to situations that aren't life or death, it's better to start with the client's worries. The biggest concern may be the patient's severe weight loss over the final six months of chemotherapy. while weariness may be the patient's primary issue. Although the two challenges are inextricably linked, will be more successful as a changing agent tackle the problems from the client's viewpoint. When the customer owns the objective, he or she is far more committed to attaining it. Keep in mind that the goal for all clients is to consume adequate calorie, proteins, and nutrition while eating meals that they enjoy. Other short-term objectives can be defined if necessary to relieve side effect or symptom of illness or therapies, as well as to avoid complications or recurrences. Following the achievement of short-term objectives, focus may shift to encouraging healthy eating in order to lower the risk of chronic disorders related to diet such “obesity, diabetes, hypertension, and atherosclerosis (Karen Lacey, 2006).

2.13.5.D. Nursing Interventions

What would you or others are doing to assist the customer reach his or her objectives more effectively and efficiently? Nutritional treatment and client education may be used as interventions(Fessler, 2008).

2.14. Nutrition therapy

Because specific nutritional needs are established on an individual basis, nutrition therapy suggestions are typically broad suggestions to limit or avoid, increase or decrease, reduce or encourage, and modify or maintain portions of the nutrition. Consider these as a first

point and observe the client's reaction if more exact nutrition levels are specified (Dudek, 2013).

The ideal diet may be impracticable in the clinical or home context due to factor like the client's prognosis, degree of intellect and drive, outside support networks, desire to cooperate, emotional health, religious or cultural heritage, financial situation, and other medical issues. At any one moment, generalizations may not apply to all people. Comfort food are also beneficial for emotional reasons, even if they are not nutritive. Whenever feasible, honor customers' requests for specific comfort meals. In Table 2.11, the nurse is given suggestions on how to encourage appropriate intake (Mulazzani et al.,2021).

2.14.1. Client Teaching

Patients in a therapeutic situation may be more responsive to dietary guidance than healthy individuals, particularly if they feel better or are afraid of recurrence or repercussions. However, hospitalized patients are more likely to be perplexed by dietary advice. Pain, drugs, anxiety, or a distracting environment may impair the patient's capacity to absorb new information. The time spent learning about a diet with a dietitian or diet technologist may be brief or disrupted, as well as the patients may still not understand what question were asked until the nutritionist has departed. Nurses may help clients and families learn in a variety of ways, as shown in Table 2.12.(Zhu et al., 2018).

2.14.2. Monitoring and Evaluation

Even though they are distinct in reality, monitoring and assessment are grouped together. In actuality, monitoring comes before assessment as a technique to keep track of the client's progress or problems. Table 1.10 contains recommendations for general monitoring. After the nursing care plan has had time to function, evaluation analyzes if the client outcomes were reached. Given the inherent constraints of an abstract nursing care plan, in an ideal world, the client's objectives are met on time, and assessment statement are client's objectives transformed from the client's will to the client's is. In fact, results may be just partly realized or not fulfilled at all; in these cases, it's critical to figure out why the outcome was less than ideal. Were the results for this specific customer realistic? Were the treatments effective and executed consistently?(Karen Lacey, 2006).

The plan is evaluated to see whether it should be kept, changed, or eliminated. Consider the case of a man who has been brought to the hospital with persistent diarrhea. The client had lost a lot of weight in the three weeks leading up to admission owing to malabsorption caused by diarrhea. Your aim is for the client to stay at the same weight as when he was admitted. Small portions of low-residue foods should be served as requested, lactose should be avoided due to the risk of intolerance, and protein and calories should be increased as needed(Fessler, 2008).

2.15. Vitamins and Minerals that Necessary and Recommended for Cancer Patients.

2.15.1. Vitamins

Vitamins are organic compounds made of carbon, hydrogen, oxygen, and sometimes, nitrogen or other elements. They differ in their chemistry, biochemistry, function, and availability in foods. Vitamins facilitate biochemical reactions within cells to help regulate body processes such as growth and metabolism. They are essential to life.

Vitamins and their applications are discussed in this chapter. There are certain generalizations concerning fat- and water-soluble vitamins. Individual characteristics of each vitamin are examined, as well as factors for choosing a vitamin supplement.

Vitamin Classifications Based on Solubility

The solubility of vitamins is used to classify them. Fat-soluble vitamins include A, D, E, and K. Water soluble vitamins include vitamin C, riboflavin, folate, biotin, niacin, B6, B12, and pantothenic acid. Vitamin absorption, transport, storage, and excretion are all determined by solubility (Taguchi et al ., 2014).

2.15.2. Vitamin D3

Vitamin D is a fundamentally important nutrient that the human body requires for proper function. Decrease vitamin D level in the body may be harmful for health, including a reduction in immune system capability(Mendes et al.,2018).

Vitamin D is unusual in that if solar exposure is ideal and liver and kidney functions are normal, the body has the ability to produce all of the vitamin D it requires. The process begins in the liver, where cholesterol is converted to 7-dehydrocholesterol, a vitamin D precursor. The skin transforms 7-dehydrocholesterol to cholecalciferol, better known as

vitamin D3, a prohormone, when exposed to sunlight. Cholecalciferol is transformed to the active form of vitamin D (1,25-dihydroxyvitaminD3) by a sequence of events involving the liver and kidneys, whether it is generated in the skin or obtained from diet. Vitamin D is not an essential nutrient since it may be generated endogenously. Vitamin D is also unique in that it is generated in one region of the body (the skin) and promotes functional activity in other parts of the body (e.g., the GI tract, bones, and kidneys) through vitamin D receptors. Vitamin D's major purpose is to keep calcium and phosphorus levels in the blood at normal levels by:

- Calcium and phosphorus absorption from the Gastrointestinal system is stimulated.
- Calcium and phosphorus are mobilized from the bone as required to keep serum levels normal.
- The kidneys are stimulated to retain calcium and phosphorus. (Al-Musawi & Baiee, 2020).

Normal Level of Vitamin D:

The US National Academy of Medicine considers a serum 25-hydroxyvitamin D (25(OH)D) level of at least 50 nmol/L as the adequate exposure to vitamin D to maintain bone health. Individuals with levels less than 30 nmol/L are considered as severe deficient. Vitamin D status is determined by the quantity of 25(OH)D serum in the body. A concentration of 25(OH)D of at least 40 ng/mL is considered the norm. The severity of vitamin D insufficiency varies from mild (27 to 39 ng/mL) to moderate (14 to 26 ng/mL) to severe (Matthews et al., 2012).

Table 2.6. Vitamin D DRIs Recommended Dietary Allowance (Ross et al., 2011).

Age	Upper-Level Intake
0-6 years	400 1,000
6-12 years	400 1,500
1-3 years	600 2,500
4-8 years	600 3,000
9-18 years	600 4,000
19- 70 years	600 4,000
> 70 years	600 4,000

Vitamin D (VD) deficiency is very prevalent, about one billion of the population are affected About 50% of public in developing countries are VD deficient, less sunlight exposure, dark skin, the elderly, wearing clothing that covers the majority of the body, female gender, and obesity are all factors that contribute to VD deficiency (Liefaard M.C., 2015).

2.15.3. Cancer and Vitamin D Deficiency.

The low vitamin D level and having breast cancer among 32 Iraqi females attending Merjan Teaching Hospital (Babylon Province) (Alwan&nada 2016).

Later, in 1980 and 1992, the first epidemiological studies linking low sunlight exposure and high risk of colon and prostate cancers were reported, respectively, which suggested that vitamin D as a surrogate for sunlight exposure may protect against colon and prostate cancer risk ,Since then, many epidemiological studies have supported and extended the UVB–vitamin D–cancer hypothesis in 18 different types of cancers (Grant & Mohr, 2009).

The relationship between vitamin D and cancer, summarizing several mechanisms proposed to explain the potential protective effect of vitamin D against the development and progression of cancer. Vitamin D

acts like a transcription factor that influences central mechanisms of tumorigenesis: growth, cell differentiation, and apoptosis. In addition to cellular and molecular studies, epidemiological surveys have shown that sunlight exposure and consequent increased circulating levels of vitamin D are associated with reduced occurrence and a reduced mortality in different histological types of cancer (Colao et al., 2015).

2.15.4. Role of Community Health and Family Nurses in Prevention of VDD in Elders.

Healthy food choices are vital to preventing illness, particularly chronic illnesses such as diabetes, hypertension and other non-communicable diseases. Nurses work in a variety of healthcare settings, not just hospitals. Proper nutrition is not only important for preventing disease, it is also essential to the recovery process (Salmond & Echevarria, 2017). Nurses should have the expertise and responsibility to confirm that clients' nutritional need are met. Providing nutrition screening and appropriate nutrition advice and health education are essential to improve healthy eating and subsequent health outcomes (Xu et al., 2017).

Knowledge about vitamin D was limited. Clearer messages are needed about risks and benefits of sun exposure. Testing and supplementation by health professionals, while potentially useful in some high-risk groups, have contributed to a medicalized view of vitamin D. Health policy should address the public's need for clear information on sources and effects of vitamin D, including risks and benefits of sun exposure, and take account of divergent views on fortification. Professional guidance is needed on testing and supplementation to counter inappropriate medicalization (Kotta et al,.2015).

2.16. Carbohydrates

When most people think of carbohydrates, they think of sugar and starch, but carbohydrates are much more than that. Carbohydrate-rich foods might be empty calories, nutritious powerhouses, or anything in the middle. Carbohydrates account for the bulk of calories in practically all human diet worldwide. This part explains what carbs are, how they are used in the body, and where they may be found in the diet. Recommendation for carbohydrate consumption and its significance in health are provided (Dudek, 2013).

Carbohydrate Classifications.

Carbohydrates (CHO) are simple sugar molecules made up of the elements carbon, hydrogen, and oxygen. They are divided into two categories: simple sugar and complex carbs (Figure 2.5).

Simple Sugars

Simple sugars are made up of only (monosaccharides or disaccharides and come in a variety of sweetness and sources (Table 2.1). Disaccharides like maltose, sucrose, and lactose should be broken down into monosaccharides before being absorbed; monosaccharides like glucose, fructose, and galactose can be absorbed without it being digesting. Glucose, commonly known as dextrose, is the most well-known simple sugar since it circulates in the blood to produce power to cells, is a constituent of all disaccharides and nearly the sole ingredient of complex carbs, and is the glucose whereby the body transforms all other digested carbs (Amod, 2013).

Complex Carbohydrate

Polysaccharides, or complex carbohydrate, are made up of hundreds to thousands of glucose molecules joined together. Polysaccharides do not taste sweet despite being formed of sugar as their molecule are excessively big to fit on the taste bud receptor that detect sweetness on the tongue. Polysaccharides include starch, glycogen, and fiber. Starch. Plants

produce glucose, which they utilize for energy, via the process of photosynthesis. In seeds, roots, and stems, glucose that is not needed for immediate energy is stored as starch. Wheat, rice, maize, barley, millet, sorghum, oats, and rye are the world's most important food crops and the basis of all cuisines. Potatoes, lentils, and other starchy vegetables are also good sources of starch (Slavin, 2008).

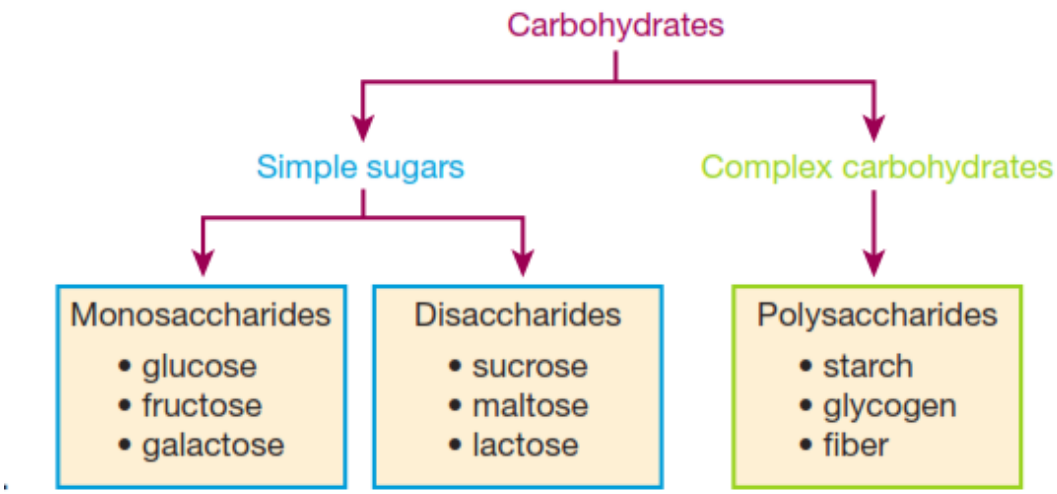


Figure 2.5. Carbohydrate Classifications

2.17. Protein

Protein means "first position" in Greek, because life would not be possible without it. Protein is found in all living cells, including plants, animals, and microorganisms. Protein accounts for 20% of total body weight in adults. Dietary protein seems to be immune to the debate about optimum consumption that has engulfed carbs and fat. The structure of proteins, its activities, and how it will be managed in the body are all covered in this chapter. The significance of protein in health promotion is discussed, as well as sources and dietary reference intake(Bopp et al., 2008).

Amino Acids

All proteins are made up of amino acids, which are also the end products of protein breakdown. A carbon atom core with four bonding sites exists in all amino acids: one retains a hydrogen atom, one an amino group (NH2), and one an acid group (COOH). A side group (R group) is attached to the fourth bonding site and includes the atoms that give each amino acid its unique identity. Some of the side groups include sulfur, while others are acidic or basic. The variances in shape, size, and electrical charge among amino acids are due to differences in these side groups (Rock et al., 2012).

There are Twenty abundant amino acids, nine of which have been considered as essential or necessary since they cannot be produced by the body and must be obtained from food. Because cells can synthesize them as required via the process of transamination, the other 11 amino acids are classified as non-essential or dispensable. When metabolic demand is high and endogenous synthesis is inadequate, certain dispensable amino acids may become obligatory. The designations essential and nonessential apply to whether or not they must be obtained from food, not to their relative importance: the body must have access to all 20 different amino acids in order to produce proteins(Grover & Ee, 2009).

2.18. Lipids

It's long been a dietary mantra to eat less fat. However, decades of research have shown that the link between obesity and chronic illness is significantly more complicated than that straightforward suggestion suggests. Weight reduction is not guaranteed by eating less fat without respect to overall calorie intake. Furthermore, although obesity raises the risk of some malignancies, the danger may be due to an excess of calories rather than dietary fat. The kind of fat may be more significant than the quantity of fat when it comes to heart disease and stroke. While all fats are calorically rich, some are excellent (unsaturated) and should be consumed

in moderation, while others are detrimental (saturated fat and trans fats) and should be avoided. Triglycerides (fats and oils), which account for 98 % of the fat in food; phospholipids (e.g., lecithin); and sterols are three types of lipids that are referred to as fat throughout the remainder of this chapter and book (e.g., cholesterol). Lipids, their dietary source, and how they are processed in the body are all discussed in this chapter. The function of fat are discussed, as well as dietary suggestions(Bantle et al., 2008).

Functions of Fat in the Body.

Fat's principal job is to provide energy to the body. At rest, fat supplies roughly 60% of the body's calorie requirements. All fats, ether cis or trans, saturated or unsaturated, has 9 calories per gram, which is more than twice as much as an equal quantity of carbohydrate or protein. Although fat is an essential energy source, it cannot supply all of the body's energy requirements since some cells, such as brain cells and CNS cells, depend only on glucose for energy. Fat serves a variety of additional roles in the body. Internal organs are protected from mechanical harm by fat deposits that insulate and cushion them. By acting as a layer of insulation against the cold, fat under the skin aids in the regulation of body temperature. When fat-soluble vitamins A, D, E, and K are eaten at the same time, dietary fat aids absorption. Different forms of fatty acids serve different purposes in the body. As an example,

1. Saturated fatty acids provide cell membranes shape and help proteins operate normally.
2. Monounsaturated fatty acids are found in lipid membranes, particularly myelin in nerve tissue.
3. Both necessary fatty acids aid in the maintenance of good skin and the promotion of appropriate child development.

4. Omega-6 polyunsaturated fatty acids are involved in fatty acid production, are found in cell membranes, and are implicated in cell signaling pathways.
5. Eicosanoids (e.g., prostaglandins, thromTableane's, and leukotrienes) are a category of hormone-like compounds that assist control blood pressure, blood clotting, and other biological processes. Arachidonic acid and EPA are precursors to eicosanoids (e.g., prostaglandins, throm tableane's, and leukotrienes). EPA eicosanoids having greater health advantages than arachidonic acid eicosanoids; they help decrease blood pressure, prevent blood clots, protect against arrhythmia, and reduce inflammation (Rolfes, Pinna, and Whitney, 2009). The inflammatory response is mediated by prostaglandins generated from arachidonic acid (IFICF, 2011).
6. Because of their anti-inflammatory, antiarrhythmic, and anticlotting properties, EPA and DHA may help prevent and cure heart disease (IFICF, 2009). They are required for appropriate development and growth. DHA is prevalent in the structural lipids of the brain and retinal membranes in particular (Rolfes et al., 2014).

2.19. Water and Minerals.

Water is necessary for life to exist and considered the single most important component of the human cells, accounting for around 60% of total body weight. It is the medium through which all metabolic processes occur. Despite the fact that most individuals can live for 6 weeks or more without food, without water, death happens in a couple of days. Water fills almost every area inside and between body cells, and it plays a role in almost every bodily function. Water

1. Gives cells their form and structure. Cells contain around two-thirds of the body's water (intracellular fluid). Muscle cells have a greater water content (70–75%) than fat cells, which contain only approximately

25%age water. Men have a larger proportion of body water than women since they have more muscular mass(Bailey et al., 2011).

2. Controls the body's temperature. The vast volume of water in the body helps to maintain body temperature homeostasis despite changes in ambient temperatures since water absorbs heat slowly. The body is cooled via the evaporation of water (sweat) from the skin.
3. Assists in nutrient digestion and absorption. The gastrointestinal system secretes between 7 to 9 liters of water every day to promote digestion and absorption. All of the water contained in gastrointestinal secretions (pancreatic secretions, gastric secretions, saliva, bile, and intestinal mucosal secretions) is reabsorbed in the ileum and colon, with the exception of around 100 mL expelled via the feces.
4. Conveys nutrients and oxygen to the cells. Water helps oxygen to dissolve and migrate into blood for distribution throughout the body by moistening the air sacs in the lungs. Water makes up around 92 % of blood plasma.
5. Assists with the absorption of vitamins, minerals, carbohydrates, and amino acids by acting as a solvent. Water's solvating ability is critical for health and life.
6. Takes part in metabolic processes. Water is utilized in the production of hormones and enzymes, for example.
7. It gets rid of waste items. Water aids in the excretion of wastes from the body via urine, feces, and expirations.
8. It's found in a lot of mucus and other lubricating fluids. Water lowers friction between ligaments, bones, and tendons in joints, as well as between internal organs that glide over one another (Valtin, 2002).

Water Balance

The dynamic condition of water outflow and intake is known as water balance. In typical circumstances, output and intake are about equal (Fig.2.6).

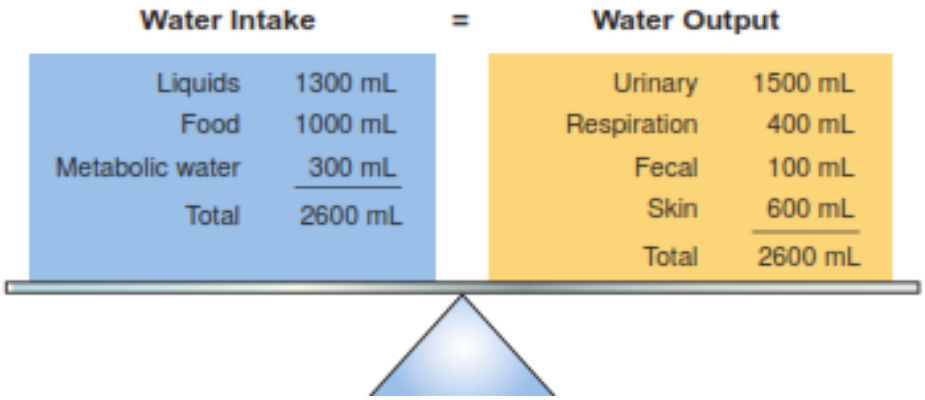


Figure 2.6. Water Balance Approximations (Soediono, 2013).

Water Output:

Adults lose from 1750 to 3000 mL of water each day on average. Extreme ambient temperatures (very hot or cold), high altitude, low humidity, and hard activity all increase insensible water losses from the skin and respiration. Evaporation of water Prolonged exposure to hot or recirculated air, such as during lengthy aircraft journeys, increases the amount of sweat produced by the skin. The remaining water loss is made up of sensible water losses from urine and feces. Because the body must expel a minimum of 500 mL of urine each day to clear itself of metabolic wastes, the daily total fluid output must be about 1500 mmL. In order to maintain water balance, intake should equal out flow (Intakes, 2014).

Water Intake:

The typical daily water consumption is about 212 liters, with roughly 80% of it coming from fluids and 20% from solid meals (Institute of Medicine [IOM], 2005). Various forms of bottled water are described in Almost all foods, with the exception of oils, include water, with fruits and

vegetables supplying the most (Fig 6.2). Normal metabolism also creates a tiny quantity of water: as carbs, protein, and fat are catabolized for energy, carbon and hydrogen atoms are released, which mix with oxygen to form water and carbon dioxide. Depending on total calorie consumption, 250 to 350 mL of metabolic water is generated daily on average (Astuti et al .,2015).

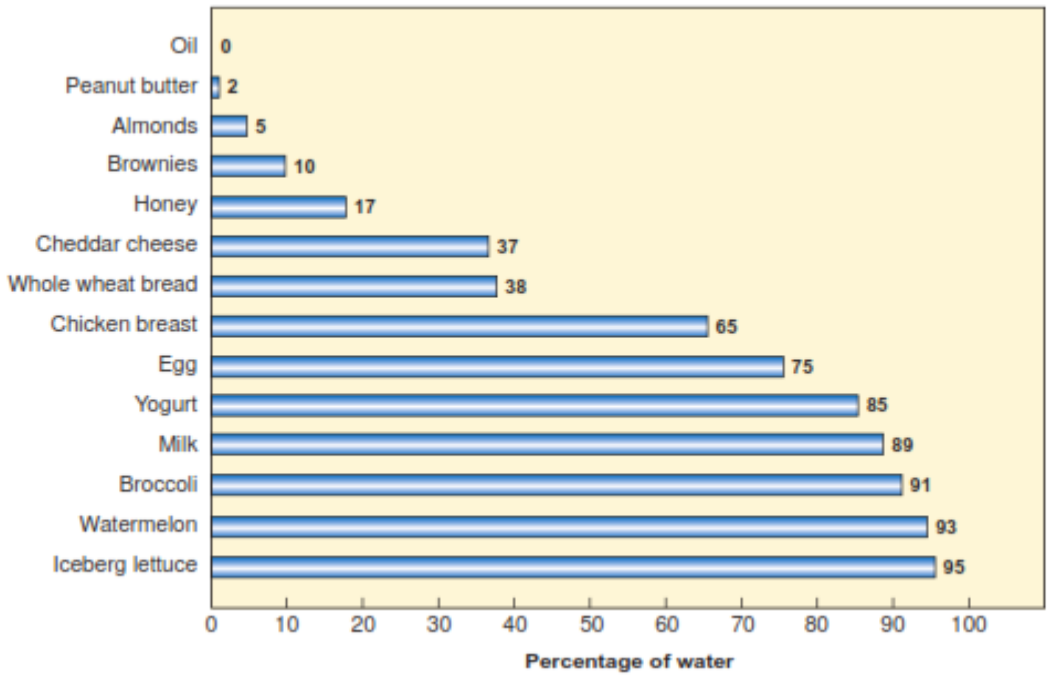


Figure 2.7. Percentage Age of Water Content of Various Foods (Dudek, 2013).

General Functions

Minerals help to form human tissues and govern processes including fluid balance, acid–base balance, nerve cell communication, muscular contraction, and vitamin, enzyme, and hormone activity (Bailey et al., 2011).

Minerals

Minerals are present in all physiological fluids and tissues, while accounting for just around 4% of the body's overall weight. Potassium and chloride are two major minerals that may be present in excess of 5 g in the

body (the equivalent of 1 tsp). Trace minerals include "iron, iodine, zinc, selenium, copper, manganese, fluoride, chromium, and molybdenum". They are categorized as trace minerals since they are present in the body in amounts less than 5 g. Both are necessary for survival. Lead, gold, and mercury are just a few of the potentially dangerous elements found in the human body. Their existence seems to be linked to pollution in the environment (Roth, 2013).

Chemistry in General

Minerals, unlike energy nutrients and vitamins, are inorganic components derived from the earth's crust rather than plants or animals. Minerals are not digested, nor are they broken down or rearranged as part of the metabolic process. They maintain their chemical identities even when they mix with other elements to produce salts (e.g., sodium chloride) or organic molecules (e.g., iron in hemoglobin). Minerals, unlike vitamins, are not destroyed during food preparation by light, air, heat, or acids. In truth, minerals are the ash that remains after food has been entirely burnt. Only when meals are soaked in water do minerals go (Bhatla & Lal, 2018).

Major Minerals

Calcium, magnesium, phosphorus, and sulfur are the remaining significant minerals. Table 2.16 summarizes them; the next section contains further pertinent information see (Table 2.16).

Calcium

Calcium is the most plentiful mineral in the body, making up about half of the body's total mineral content. Almost all of the body's calcium (99%) is found in bones and teeth, where it combines with phosphorus, magnesium, and other minerals to provide rigidity and structure. Bones serve as a large, dynamic reservoir of calcium that readily releases calcium when serum levels drop; this helps to maintain blood calcium levels within normal limits when calcium intake is inadequate. The remaining 1% of calcium in the body Is found in plasma and other body fluids, where it has important roles in blood clotting, nerve transmission, muscle contraction and relaxation, cell membrane permeability, and the activation of certain enzymes. Calcium balance—or, more accurately, calcium balance in the blood—is achieved through the action of vitamin D and hormones (Iris, 2010).

When blood calcium levels fall, the parathyroid gland secretes parathormone (PTH), which promotes calcium reabsorption in the kidneys and stimulates the release of calcium from bones. Vitamin D has the same effects on the kidneys and bones and additionally increases the absorption of calcium from the gastrointestinal tract. Together, the actions of PTH and vitamin D restore low blood calcium levels to normal, even though bone calcium content may fall (Bolland et al., 2011).

A chronically low calcium intake compromises bone integrity without affecting blood calcium levels. When blood calcium levels are too high, the thyroid gland secretes calcitonin, which promotes the formation of new bone by taking excess calcium from the blood. A high calcium intake does not lead to hypercalcemia but rather maximizes bone density. Abnormal blood concentrations of calcium occur from alterations in the secretion of PTH.

An adequate calcium intake throughout the first three decades of life is needed to attain peak bone mass as determined by genetics. A dense bone mass offers protection against the inevitable net bone loss that occurs in all people after the age of about 35 years. In the United States, an estimated 72% of calcium intake comes from milk, cheese, yogurt, and foods containing dairy products. People who avoid dairy products are challenged to consume adequate calcium because although calcium is well absorbed from some plants, the total amount of calcium provided is much lower than in dairy foods. Fortified ready-to-eat breakfast cereals and calcium-fortified orange juice are excellent sources of calcium(Bush et al., 2010).

An adequate calcium intake throughout the first three decades of life is needed to attain peak bone mass as determined by genetics. A dense bone mass offers protection against the inevitable net bone loss that occurs in all people after the age of about 35 years. In the United States, an estimated 72% of calcium intake comes from milk, cheese, yogurt, and foods containing dairy products, such as pizza (IOM, 2011).

People who avoid dairy products are challenged to consume adequate calcium because although calcium is well absorbed from some plants, the total amount of calcium provided is much lower than in dairy foods. Fortified ready-to-eat breakfast cereals and calcium-fortified orange juice are excellent sources of calcium(Li et al.,2012).

Phosphorus

After calcium, the most abundant mineral in the body is phosphorus. Approximately 85% of the body's phosphorus is combined with calcium in bones and teeth. The rest is distributed in every body cell, where it performs various functions, such as regulating acid–base balance (phosphoric acid and its salts), metabolizing energy (adenosine triphosphate), and providing structure to cell membranes (phospholipids).

Phosphorus is an important component of RNA and DNA and is responsible for activating many enzymes and the B vitamins. Normally about 60% of natural phosphorus from food sources is absorbed, but absorption of phosphorus from food preservatives (e.g., phosphoric acid) is almost 100% (Bell, Draper, Tzeng, Shin, and Schmidt, 1977). As with calcium, phosphorus absorption is enhanced by vitamin D and regulated by PTH. The major route of phosphorus excretion is in the urine. Because phosphorus is pervasive in the food supply, dietary deficiencies of phosphorus do not occur. Animal proteins, dairy products, and legumes are rich natural sources of phosphorus; soft drinks contain phosphoric acid. Phosphate additives—which are often added to commercially prepared foods to extend shelf life, improve taste, improve texture, or retain moisture—can be significant sources of phosphorus. Mean intake in Americans age 20 years and older is 1550 mg/day among men and 1123 mg in women, which are amounts significantly higher than the RDA of 700 mg (USDA, ARS, 2010).

Because most food databases do not count phosphorus derived from food additives, the total amount of phosphorus consumed by the average person in the United States is unknown.

Magnesium

Magnesium is the fourth most abundant mineral in the body; approximately 50% of the body's magnesium content is deposited in bone with calcium and phosphorus. The remaining magnesium is distributed in various soft tissues, muscles, and body fluids. Magnesium is a cofactor for more than 300 enzymes in the body, including those involved in energy metabolism, Protein synthesis, and cell membrane transport. There is increasing interest in the role magnesium may play in preventing hypertension and managing cardiovascular disease and diabetes (Office of Dietary Supplements, National Institutes of Health, 2009).

Mean magnesium intake among American adults is approximately 80% of the RDA. A low magnesium intake is related to the intake of refined grains over whole-grain breads and cereals because magnesium that is lost in the refining process is not added back through routine enrichment. However, food consumption data do not include the magnesium content of water, which is significant in water classified as "hard." Despite chronically low intakes, deficiency symptoms are rare and appear only in conjunction with certain disorders, such as alcohol abuse, protein malnutrition, renal impairments, endocrine disorders, and prolonged vomiting or diarrhea.

Trace Minerals

Although the presence of minerals in the body is small, their impact on health is significant. Each trace mineral has its own range over which the body can maintain homeostasis. People who consume an adequate diet derive no further benefit from supplementing their intake with minerals and may induce a deficiency by upsetting the delicate balance that exists between minerals. Even though too little of a trace mineral can be just as deadly as too much, routine supplementation is not recommended. Factors that complicate the study of trace minerals are as follows:

1. The high variability of trace mineral content of foods. The mineral content of the soil from which a food originates largely influences trace mineral content. For instance, grains, vegetables, and meat raised in South Dakota, Wyoming, New Mexico, and Utah are high in selenium, whereas foods grown in the southern states and from both coasts of the United States have much less selenium. Other factors that influence a food's trace mineral content are the quality of the water supply and food processing. Because of these factors, the trace mineral

content listed in food composition tables may not represent the actual amount in a given sample.

2. Food composition data are not available for all trace minerals. Food composition tables generally include data on the content of iron, zinc, manganese, selenium, and copper, but data on other trace minerals, such as iodine, chromium, and molybdenum, are not readily available.
3. Bioavailability varies within the context of the total diet. Even when trace element intake can be estimated, the amount available to the body may be significantly less because the absorption and metabolism of individual trace elements is strongly influenced by mineral interactions and other dietary factors. An excess of one trace mineral may induce a deficiency of another. For instance, a high intake of zinc impairs copper absorption. Conversely, a deficiency of one trace mineral may potentiate toxic effects of another, as when iron deficiency increases vulnerability to lead poisoning.
4. Reliable and valid indicators of trace element status (e.g., measured serum levels, results of balance studies, enzyme activity determinations) are not available for all trace minerals, so assessment of trace element status is not always possible.

2.20. Previous Studies

First Study:

Bjerrum, et al., 2012. Nurses' self-reported dietary knowledge and attitudes before and after a training session. The dietary understanding of the nurses improved as a result of the training program. It enhanced their understanding of nurse-specific therapy and their duty for nutrition evaluation, as well as making them feel more safe and strengthening their capacity to take on additional nutrition management responsibilities. We also discovered that nurses still struggle to explain their nutrition knowledge using academic terminology, preferring instead to utilize

generic language. Conclusion: The findings imply that a brief training program improves nurses' knowledge of nutrition care, but it is insufficient to ensure that nurses fully comprehend their role in nutrition care.

Second Study:

(Malone, 2015) In Hematologic Cancer, Improving Nutritional Status Improving Nutritional Status in Patients with Hematologic Oncology. The majority of hematologic cancer patients eat well. However, as their therapies progress, side effects similar to those seen in solid tumors might have a negative impact on nutrition. Total intravenous or enteral feeding therapy are started only when mouth consumption has been hampered for 2-3 days.

The goal of this study is to see how beneficial an earlier nutritional intervention is on hematologic oncology patients' nutritional state and understanding.

Conclusions and Practice Implications: In this group, a nutrition educational intervention is viable, and patient knowledge has increased significantly. Nutritional therapy should begin as soon as possible and continue after the patient leaves the hospital.

Third Study:

(Van Veen and colleagues, 2017) Improving Oncology Nurses' Nutrition and Physical Activity Knowledge for Cancer Patients. Findings: 43% of oncology nurses said they lacked the expertise to offer nutrition advice, while 46% believed they lacked the knowledge to provide PA guidance. Being younger, having less education, and only offering nutrition advice during treatment were all linked to perceptions of poor nutrition understanding. Those nurses were less likely to offer advice on hydration consumption and were more likely to recommend taking oral nutritional supplements or seeing a nutritionist.

Fourth Study:

(Sharour, 2019) A quasi-experimental design to improve oncology nurses' knowledge, self-confidence, and self-efficacy in nutritional evaluation and counselling for cancer patients.

Results: There was a significant difference in knowledge after the interventional sessions between the experimental (mean [M]= 26.00, SD = 8.00) and control (M= 10.00, SD= 3.75) groups (t =16.00, P = 0.001). Moreover, the findings revealed a significant difference (t =24.00, P = 0.001) in self-confidence in handling cancer patients between the experimental group (M= 60.50, SD= 13.10) and the control group (M= 36.50, SD= 7.60).

Finally, when it came to self-efficacy, there was a significant difference between the experimental group (M= 33.50, SD= 3.10) and the control group (M= 23.25, SD= 2.75) (t = 10.25, P = 0.001). Conclusions: The instructional program enhanced cancer nurses' nutritional assessment and counselling knowledge, self-confidence, and effectiveness. Nurse competency enhancement will increase the quality of care offered to patients as well as patient health outcomes.

Chapter Three

Methodology

Chapter Three

Methodology

Scientific research methodology is a set of specific scientific standards, criterion and controls that are followed during the work of scientific research. Therefore, scientific research methodology is one of the important matters on which it builds and organizes good scientific research. One of the most important controls of scientific research is that it should be organized and accurate, so that everyone who reads it and looks at its line's benefits from it, and therefore we should address the various scientific research methods that the researcher can use during the work of a well-structured scientific research. In this chapter, the study design and all other scientific steps that were followed by the researcher from the beginning of the study until its completion will be covered.

3.1. Study Design

The current study used a quasi-experimental study design consists of three assessments (Pre-program test, and two tests after program application which) for study and control group. which conducted for the period from 15th March 2021 to 10th June 2022.

A quasi-experimental study design is an experimental intervention research study that does not employ random assignment to determine the causal effect of an interventions (educational programmers) on the target population (nurses). Although quasi-experimental research resembles classic experimental design or randomized controlled trials, it lacks the aspect of random treatment. Instead, a quasi-experimental design allows the researcher to regulate the treatment conditions assignment using a different criterion than randomly assigning.

3.2. Administrative Arrangements

The official permissions were obtained from relevant authorities before collecting the study data as follow:

1. Protocol of research approved by Community Health Nursing Branch, and official permission taken from University of Babylon, College of nursing to conduct the study.
2. The title, constructed educational program and questionnaire were presented to the Ethics Committee formed within the College of Nursing, which reviewed the study tools (program and questionnaire), and therefore agreed to conduct the study. Official letter provided in 15th March 2021 to conduct the study.
3. An official approval was to obtained from Health Directorate of Al-Diwaniyah / Al-Diwaniyah Specialized Oncology Center.
4. In the last step of the administrative arrangements, an official letter by the (Preparation and Training Department) Health Directorate of Al-Diwaniyah was issued to Diwaniyah Specialized Oncology Center, for facilitating cooperation with the researcher in completing his research work. (Appendix A).
5. In addition, the consent of the nurse to participate in the study was taken, after explaining the objectives and usefulness of the study to them and assuring that all information provided will be confidential and for scientific and research purposes (autonomy and privacy). (Appendix A+B).

3.3. Setting of the Study

The educational program was implemented at Al- Diwaniyah / Health Directorate of Al-Diwaniyah / Al-Diwaniyah Specialized Oncology Center. It is a specialized center established in 2014 and its administrative affairs are directly related to the Diwaniyah Health Directorate. It contains

44 beds and 19 wards (1 or 2 beds in each one). distributed between females and males. It also contains 80 nurses to provide nursing care to patients with cancer. The departments of the center are the administrative section, the statistics unit, the laboratory, internal pharmacy, clinical pharmacy for the solution of chemotherapy. The most frequent cases are breast, lung, lymph node and colon cancer. The center provides different medical and health services, including chemotherapy and medical treatment for deteriorating cases.

3.4. Sampling

A non-probability "convinces" sample had been consisted of (60) oncologic nurses who have been chosen to obtain the represent and accurate data. The sample size is (60) nurses, split into two groups, one of which includes (30) nurses as the study group and the other consists of (30) nurses as the control group. The study group is exposed to the educational program deals with nutrition of oncologic patients and essential nutritional supplement of cancer patients, the control group, on the other hand, has not been subjected to the educational program. These individuals were chosen based on the following criteria:

3.5. Steps of the Study

The present study was conducted at the following steps:

3.5.1. Preliminary Assessment of Nurse's Knowledge about Nutrition of Oncologic Patients and Vitamin D3, Calcium.

The goal of this assessment was to see how much information nurses have regarding interventional of nutrition for oncologic patients. The researcher employed an open questionnaire style to complete this section of the investigation. The format's material was adopted from on a survey of relevant literature as well as the knowledge are personal experiences. A test was performed on a group of ten nurses from the AL-

Diwaniyah Specialized Oncology Center. A questionnaire is required for the assess of nurse's knowledge.

3.5.2. Construction of the Educational Program

The training programmer was created in response to the demands of nurses, as well as information gleaned through a study of relevant scientific literature, past studies, and the researcher's own experience. Experts in several fields appraised the program's substance (Appendix C). Based on the views and suggestions of these specialists, the contents of the program form were revised. They have agreed that the program was designed efficiently to improve oncology nurses' knowledge toward nutrition of oncologic patients and Vitamin D3, calcium ca++ of cancer patients (Appendix B).

3.6. Group Assignment

3.6.1. Control Group:

Nurses in the control group were only subjected to routine tasks and information relevant to their job. In this study, only two tests were taken (pre-posttests)

3.6.2. Study Group:

The study group received the same information as the control group, as well as an educational program targeted at enhancing their understanding of oncologic patients' nutrition and Vitamin D3, calcium ca++ of cancer patients.

Implementation of the Program:

A. **Assessment Phase:** in order to assess knowledge of study and control groups toward nutritional instructions needed for patients with cancer an initial pre-test was performed.
B. **Implementation Phase:** Only the study research group's nurses were given exposed to the teaching program. Which was applied

throughout five sessions. The time for each session was 40 minutes every week two sessions on Sunday and Wednesday. The program as whole conducted in period from 22/8/2021 to 5/9/2021. Sessions' presentation details are as following.

First Session: 22/8/2021, Sunday 11:00 O'clock am

1. Brief introduction to program.
2. Concepts of nutritional instructions for patients with Cancer.

Second Session: 25/8/2021, Wednesday 11:00 O'clock Am

1. General information about nutrition during cancer treatment.
2. General Nutrition Guidelines.
3. Get calories and protein Supplements

Third Session: 29/8/2021, Sunday 11:00 O'clock Am

1. Food supplement.
2. Control side effects by feeding**.**

Fourth Session: 1/9/2021, Wednesday 11:00 O'clock Am

1. Chemotherapy and side effects on nutrition.
2. Signs and Symptoms of anaemia.

Fifth Session: 5/9/2021 Sunday 11:00 O'clock Am

1. Benefits of vitamins and supplements during cancer treatment.
2. Role of vitamin d3 and among cancer patients.
3. Role of calcium and among cancer patients

C. Evaluation Phase: immediately after two days of finishing the training program the study group were subjects exposed to (Post-test I) Wednesday, 8st September 2021. After a month of applying the (Post-test I), the nurse of the study group was also exposed to the (the 2ndPost-test on 10nd October) to evaluate the effectiveness of the program in improving nurse' knowledge toward nutritional instructions needed for patients with cancer.

3.7. Questionnaire of Study:

In order to achieve the present study objectives, a questionnaire has been constructed and developed as an instrument for data collection. Previous studies, guidelines and books were used in development and construction of the questionnaire.

To obtain data from study participants, the questionnaire includes the following part related to:

The first are socio-demographic characteristics like (age, residents, gender, education level, years of experience in oncology unit).

The second one is part related to the knowledge of the nurses, it was constructed by the researcher through review of literature, which includes:

a) Nurses' knowledge related to nutrition of oncologic patients: Which composed of (36) items measured on 3-point such as (I know, uncertain, I don't know).

b) Nurses' knowledge related to Vitamin D3, calcium ca++ of cancer patients: Which composed of (20) items measured on 3-point such as (agree, uncertain, disagree).

3.8. The Questionnaire's and Program's Validity:

The validity of the questionnaire entails ensuring that it will measure what it was designed to measure, as defined by honesty (the questionnaire's inclusion of all the elements that must be included in the analysis on the one hand, and the clarity of its paragraphs and vocabulary on the other, so that it is understandable to everyone who uses it).

To improve the validity of the questionnaire, the tool of data collection it was submitted to 19 experts from various domains. Experts were asked for their opinions and comments on each of the research questionnaire's questions in terms of linguistic appropriateness, relationship

with the dimension of study variables to which it was allocated, and suitability for the study population.

Minor adjustments to several things were suggested by the experts, and they were finalized according to their recommendations, then the final draft was completed to be ready for conducting the study.

The expert panel were:

[3] Expert from Nursing Faculty / Babylon University.

[5] Expert from Nursing Faculty / Baghdad University.

[2] Expert from Nursing Faculty / Kufa University.

[1] Expert from Nursing Faculty / University of Warith Alanbiyaa.

[1] Expert from medicine Faculty / Kufa University.

[4] Expert from Nutrition Research Institute in Baghdad.

[4] Expert from Al-Diwaniyah Specialized Oncology Center.

3.9. Pilot Study

This preliminarily study was conducted to determine the stability and credibility of the study tool, clarity and its efficiency which confirmed, and the standard time required to collect data for each subject which can be estimated during the interview procedures and the difficulties identification that may encounter.

The purpose of the pilot study:

1- Determine if study participants understood the questions.

2. Estimate time for each question.

3. Assess questionnaire reliability.

Reliability of the Questionnaire:

The dependability of research instruments refers to the assurance that the response will be almost the same if it is given to the same persons at various periods.

By using coefficients test the reliability of the study instrument was specified, in addition, this test was performed separately for both knowledge questions (Table 3.1). The result of test showed acceptable reliability depending on the value of the coefficients test which was (0.780) for Knowledge about nutrition.

Table 3-1: Reliability of the Studied Questionnaire

Scale	Number of Questions	Coefficients Value	Accepted Value	Assessment
Knowledge about nutrition	**36**	**0.780**	**0.70**	**pass**

3.10. Ethical Considerations

Ethical obligations are one of the most important things that the researcher must follow and abide it when doing the study. Before the starting data collection from the target population that has been identified for the study, the researcher should clarify the main purpose and desired goal of conducting this study for the sample to be including in the study, as well as adhere to the strict confidentiality of the data taken from the study sample and pledge to use it for scientific purposes related to the study only.

Before beginning to collect data from the sample of nurses who are going to participate in the research, the researcher provided a brief explanation of the scientific background of the research, the purpose of conducting it, and the role of the nurses who are going to participate in this study, in order to provide them with a clear and complete picture of the study to be conducted.

On the other hand, the researcher emphasized that all nurses who are participating in the study had the right to not complete their participation and withdraw from this study in the event that they felt uncomfortable or annoyed with some of the items in the questionnaire that

was prepared as a research tool or the researcher's method of collecting data or anything else.

3.11. Methods of Data Collection

The implementation was carried out in the AL-Diwaniyah Specialized Oncology Center throughout the period from (22/8/2021to 10/10/202).

The following were included in the program's implementation, which was presented to the study group:

3.11.1. Each nurse in the study and control groups completed a demographic data form.

3.11.2. All of the nurses in the research were given a pre-test to measure their knowledge, which lasted 15-20 minutes.

3.11.3. They were both called to the same classroom lectures to participate in a training program.

3.11.4. On the nursing knowledge exam, there were 56 questions. Various options were presented to both the research study and control groups. The purpose of the test was to assess the nurses' knowledge of oncology nutrition and important nutritional supplements for cancer patients.

3.11.5. Each Class Will Take 40 Minutes to Complete.

3.11.6. In this study, all nurses in the study and control groups were given a post-test right at the end of the program.

3.11.7. The control group had the same procedures as the study group, with the exception of the educational program.

3.11.8. These sessions included the following teaching materials: (classroom, lectures, white board, computer, data show, book late demonstrate, not).

3.12. Rating Scores

In order to statistically analyze the score rating the following: are included

For Nutrition of Oncology Patient's Domain

1 × For disagree responses

2 × For uncertain responses

3 × For agree responses

For Vitamin D3 and Calcium of Cancer Patient's Domain

1 × For disagree responses

2 × For uncertain responses

3 × For agree responses.

3.13. Statistical Analysis Approach

The researcher employed the SPSS version (20) and Microsoft Excel (2010) programmers to statistically analyses the data acquired from the study sample in order to examine the association between different variables and to achieve the research's ultimate conclusions based on a series of analytical techniques statistical test.

3.13.1. Descriptive statistic includes the following methods:

a- Percentages and frequencies.

b- Tables and figures (Charts and Bar).

c- Mean score and standard deviation.

3.13.1.Inferential approach:

A. Pearson correlation coefficient (r): The test is used to determine the instrument's test-retest reliability.

B. ANOVA: Repeated measures of ANOVA were used to evaluate current educational program effectiveness concerning levels of the knowledge directions.

C. Chi-square. The chi-square analysis used to test the independency**.**

D. Independent t-test: Pre-test mean differences with post-test mean differences for study & control are determined through the application of the independent sample t-test.

1. t-test

A. Paired Sample t-test

To assess the significance of difference between pre-test and post-test in one group, such as pre-post test result of the study group and pre-post control group.

B. Independent Sample t-test

To assess the significance difference between two groups of measurement, such as pre-test of study group and pre-test of control group; post-test of study group and post-test of control group.

The Independent samples t-test compares the means of two independent groups to discover whether there is statistical proof that the populations mean differ significantly or not.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp\sqrt{n_1 - 1)s_1^2 + (n_2 - 1)s_2 / n_1 + n_2 - 2}}$$

2. Analysis of Variance.

Analysis of variance (ANOVA) for equality of means (testing for coincidence when the mean's parameter is different).

Source of variance	Sum of squares	Degree of freedom	Mean of square	F-statistics
Between groups	$SSB=\sum\frac{(\sum X)^2}{n}-\frac{(\sum X)^2}{n}$	DFB=1	$\frac{SSB}{DFB}$	$\frac{MSB}{MSW}$
Within groups	$SSW=(\sum X)^2-\frac{(\sum X)^2}{n}$	DF=N-K	$\frac{SSW}{DFW}$	
Total	$SST=(\sum X)^2-\frac{(\sum X)^2}{n}$	DFT=N-1		

P-value (≤0.05)

Chapter Four

Results of the Study

Chapter Four

Results of the Study

Under the objectives of current study findings, the descriptive and inferential statistic approach organized in tables and figures that includes the followings:

Table 4-1: Frequency of Demographic Variables of the Study and Control Groups

Demographic Variables	Rating and Interval	Study Group		Control Group	
		Freq.	%	Freq.	%
Age /years	20-29 years old	25	83.3	19	63.3
	30-39 years old	3	10.0	5	16.7
	40-49 years old	1	3.3	6	20.0
	50 and older	1	3.3	0	0.0
	Total	30	100	30	100
	M± SD	**25 ± 7.694**		**28 ± 7.672**	
Gender	Male	10	33.3	18	60.0
	Female	20	66.7	12	40.0
	Total	30	100.0	30	100.0
Residents	Rural	7	23.3	12	40.0
	Urban	23	76.7	18	60.0
	Total	30	100.0	30	100.0
Level of Education	Nursing graduate	0	0.0	1	3.33
	Nursing High School	8	26.7	9	30.0
	Diploma Degree	13	43.3	10	33.33
	College of Nursing	9	30.0	10	33.33
	Total	30	100.0	30	100.0
Years of Experience	1-5 years	25	83.3	18	60.0
	6-10 years	3	10.0	5	16.7
	>11 years	2	6.7	7	23.3
	Total	30	100.0	30	100.0
Experience in Oncology	1-5 years	29	96.7	21	70.0
	6-10 years	1	3.3	8	26.7
	>11 years	0	0.0	1	3.3
	Total	30	100.0	30	100.0
Training session	No	19	63.3	17	56.7
	One session	8	26.7	8	26.7
	More than once	3	10.0	5	16.6
	Total	30	100.0	30	100.0

Table 4-1 The mean age of the nurses in the research group is 25, with the ages of 20–29-year-old accounting for the biggest number of nurses in the study group (n=25; 83.3 percent). While the mean age of the nurses in the control group is 28, the age groups 20-29 years old had the largest proportion of nurses (n=19; 63.3 percent). In both groups, there were no significantly different in age group for nurses (p=0.130).

In relation to gender, female nurses heavily and significantly dominated in the study group (n=20; 66 percent), whereas male nurses prevailed in the control group (n=18; 60 percent). Nurses in both groups had significantly gender disparities (p=0.039).

In this table the result shows the urban resident were predominated among nurses in each group study and control group; (n=23; 76.7%) and (n=18; 60%) respectively.

In regard with educational level, most of nurses were diploma graduated in study group (n=13; 43.3%). While, most of nurses in control group were distributed a diploma and college of nursing graduated (n=10; 33.3%) for both.

Concerning years of experience, nurses in study and control groups expressed a less than 5 years of experience (n=25; 83.3%) and (n=18; 60%).

Years of experience in oncology unit, nurses expressed < 5 year of experience in oncology department in study group (n=29; 96.7%) and (n=21; 70%) in control group respectively.

Nurses in study and control groups expressed no attended training sessions in oncology center (n=19; 63.3%) and (n=17; 56.7%).

Table 4-2: Nurses' Knowledge about Nutrition of Oncology Patients (Study and Control Groups)

Table 4-2-1: Explain of Nurses Response at Pretest Knowledge About Nutrition of Cancer Patients.

	Knowledge items	M.s. ± SD	Evaluate
1	Eating sugar worsens cancer.	2.16±0.833	Moderate
2	All oncology patients consume a diet rich in energy.	1.63±0.718	Poor
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite	1.46±0.681	Poor
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains	1.43±0.727	Poor
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract	1.43±0.727	Poor
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.	1.43±0.678	Poor
7	All oncology patients consume small portions of food during the day	1.53±0.776	Poor
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods	1.53±0.730	Poor
9	All oncology patients consume a diet rich in protein.	1.56±0.773	Poor
10	All oncology patients need to take oral nutritional supplements.	1.43±0.727	Poor
11	All cancer patients need to drink more fluids.	1.33±0.660	Poor
12	All oncology patients should achieve and maintain a healthy weight.	1.46±0.776	Poor
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss	1.36±0.614	Poor
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.	1.73±0.827	Moderate
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.	1.53±0.819	Poor
16	Excessive weight loss and poor nutritional status can occur early in the course of some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.	1.70±0.794	Moderate
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.	1.63±0.808	Poor
18	Additional weight gain is a frequent complication of treatment	1.56±0.858	Poor
19	Cancer can cause profound metabolic and physiological changes that can affect nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).	1.56±0.858	Poor
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.	1.63±0.808	Poor
21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight	2.06±0.944	Moderate
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food	1.83±0.833	Moderate
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.	1.43±0.678	Poor
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.	1.63±0.850	Poor
25	Symptoms of anemia include pallor or yellowing of the face.	1.53±0.819	Poor
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.	1.43±0.727	Poor
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).	1.73±0.907	Moderate

28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef broth, fish broth, and broth).	1.66±0.958	Poor
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.	1.46±0.819	Poor
30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.	1.46±0.819	Poor
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).	1.33±0.711	Poor
32	Using bone broth with soup is a tip for adding more protein to your diet	1.66±0.958	Poor
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.	1.56±0.897	Poor
34	Whole milk is a useful meal for cancer patients.	1.76±0.935	Moderate
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.	1.73±0.944	Moderate
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.	1.56±0.858	Poor

"Level of Assessment (Poor=1-1.66, Moderate=1.67-2.33, Good=≥2.34"

Table 4.2.1 revealed the responses of sample of the study at the pretest with regard knowledge towards nutrition of oncologic patients. The result demonstrates that the nurses in the study groups pored at all of the questions on the pretest (M.s.=1-1.66) except, the items number (1, 14, 16, 27, 34 and 25) the responses were Moderate (M.s.=1.67-2.33).

Table 4-2-2. Overall Nurses Knowledge about Nutrition of Oncology Patients at Pretest for Study Group

Weighted	F	%	Mean ± SD
Poor Knowledge (M=36-60)	21	70.0	**57.06 ± 14.500**
Moderate Knowledge (M=61-84)	7	23.3	
Good Knowledge (M=85-108)	2	6.7	
Total	30	100.0	

This table showed that the nurses had a low knowledge level during the pre-test period (mean ± SD=57.06±14.500) with regard nutrition of oncologic patients (n=21; 70%).

Table 4-2-3: Distribution of Nurses Responses at Posttest Regarding to Knowledge of Cancer Patients Among Study Group.

Knowledge Items		M.s. ± SD	Assessment
1	Eating sugar worsens cancer.	2.06±0.980	Moderate
2	All oncology patients consume a diet rich in energy.	2.33±0.884	Moderate
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite	2.36±0.889	Good
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains	2.33±0.922	Moderate
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract	2.23±0.935	Moderate
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.	2.33±0.884	Moderate
7	All oncology patients consume small portions of food during the day	2.43±0.858	Good
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods	2.36±0.889	Good
9	All oncology patients consume a diet rich in protein.	2.26±0.907	Moderate
10	All oncology patients need to take oral nutritional supplements.	2.43±0.773	Good
11	All cancer patients need to drink more fluids.	2.36±0.927	Good
12	All oncology patients should achieve and maintain a healthy weight.	2.46±0.819	Good
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss	2.53±0.776	Good
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.	2.36±0.927	Good
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.	2.26±0.907	Moderate
16	Excessive weight loss and poor nutritional status can occur early in the course of some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.	2.53±0.776	Good
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.	2.43±0.858	Good
18	Additional weight gain is a frequent complication of treatment	2.03±0.850	Moderate
19	Cancer can cause profound metabolic and physiological changes that can affect nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).	1.96±0.964	Moderate
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.	2.60±0.985	Good
21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight	2.46±0.860	Good
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food	2.36±0.907	Good
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.	2.66±0.711	Good
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.	2.46±0.819	Good
25	Symptoms of anemia include pallor or yellowing of the face.	2.56±0.727	Good
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.	2.23±0.935	Moderate
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).	2.36±0.889	Good

28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef broth, fish broth, and broth).	2.36±0.889	Good
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.	2.43±0.858	Good
30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.	2.43±0.773	Good
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).	2.43±0.897	Good
32	Using bone broth with soup is a tip for adding more protein to your diet	2.36±0.889	Good
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.	2.43±0.858	Good
34	Whole milk is a useful meal for cancer patients.	2.33±0.922	Moderate
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.	2.66±0.660	Good
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.	2.46±0.860	Good

"Level of Assessment (Poor=1-1.66, Moderate=1.67-2.33, Good≥2.34)"

Results reveals the responses of the sample of study group at the post-test with regard knowledge towards nutrition of oncologic patients. The results demonstrate that the nurses good all of the study group's post-test questions (M.s.≥2.34) except, the items number (1, 2, 4, 5,6, 15, 18, 19, 26, and 34) the responses were Moderate (M.s.=1.67-2.33).

Table 4-2-4. Overall, Nurses Knowledge about Nutrition of Oncology Patients at Post-test.

Weighted	Freq.	%	Mean ± SD
Poor Knowledge (M=36-60)	4	13.3	**85.33 ± 16.261**
Moderate Knowledge (M=61-84)	6	20.0	
Good Knowledge (M=85-108)	20	66.7	
Total	30	100.0	

Table 4-2-4. shows that the nurses had a high degree of knowledge in the Post-test (mean ± SD=85.33±16.261) with regard nutrition of oncologic patients (n=20; 66.7%) responses for education programs.

Table 4-2-5: Explaining of Study Samples Response at Post-test II Regarding their Knowledge About Patients Nutrition.

Knowledge items		M.s. ± SD	Assessment
1	Eating sugar worsens cancer.	2.00±0.982	Moderate
2	All oncology patients consume a diet rich in energy.	2.33±0.884	Moderate
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite	2.30±0.915	Moderate
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains	2.26±0.944	Moderate
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract	2.16±0.949	Moderate
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.	2.26±0.907	Moderate
7	All oncology patients consume small portions of food during the day	2.36±0.889	Good
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods	2.30±0.915	Moderate
9	All oncology patients consume a diet rich in protein.	2.26±0.907	Moderate
10	All oncology patients need to take oral nutritional supplements.	2.36±0.808	Good
11	All cancer patients need to drink more fluids.	2.30±0.952	Moderate
12	All oncology patients should achieve and maintain a healthy weight.	2.40±0.855	Good
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss	2.46±0.819	Good
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.	2.36±0.927	Good
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.	2.26±0.907	Moderate
16	Excessive weight loss and poor nutritional status can occur early in the course of some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.	2.46±0.819	Good
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.	2.43±0.858	Good
18	Additional weight gain is a frequent complication of treatment	2.03±0.850	Moderate
19	Cancer can cause profound metabolic and physiological changes that can affect nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).	1.96±0.964	Moderate
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.	2.16±0.985	Moderate
21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight	2.43±0.858	Good
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food	2.36±0.889	Good
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.	2.63±0.718	Good
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.	2.43±0.817	Good
25	Symptoms of anemia include pallor or yellowing of the face.	2.53±0.730	Good
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.	2.16±0.949	Moderate
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).	2.33±0.884	Moderate
28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef	2.33±0.884	Moderate

	broth, fish broth, and broth).		
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.	2.40±0.855	Good
30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.	2.40±0.770	Good
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).	2.40±0.894	Good
32	Using bone broth with soup is a tip for adding more protein to your diet	2.33±0.884	Good
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.	2.40±0.855	Good
34	Whole milk is a useful meal for cancer patients.	2.33±0.922	Moderate
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.	2.63±0.668	Good
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.	2.40±0.894	Good

Results reveal the responses of the study group at the post-test two with regard knowledge towards nutrition of oncologic patients. These results show that the nurses in the studied group are good at all studied questions (M.s.≥2.34) except, the items number (1, 2, 4, 5,6, 15, 18, 19, 26, and 34) the responses were Moderate (M.s.=1.67-2.33).

Table 4-2-6. Distribution of Overall Nurses Knowledge About Nutrition of Oncology Patients at Post-test II for Study Group

Weighted	Freq.	%	Mean ± SD
Poor Knowledge (M=36-60)	5	16.7	84.03 ± 17.082
Moderate Knowledge (M=61-84)	6	20.0	
Good Knowledge (M=85-108)	19	63.3	
Total	30	100.0	

Table4-2-6 The results of this table show that the nurses had a high knowledge level at the Post-test two periods (mean ± sd=84.03 ± 17.082) with regard nutrition of oncologic patients (n=19; 63.3%).

Table 4-2-7: Statistical Differences in Pre-Post Test I and II in Overall study group Response to their level of knowledge.

Main domain	Peroids	M.s	SD	T	df	p-value	Sig
Knowledge	Pretest	1.58	0.402	6.710	29	0.001	**HS**
	Post-test I	2.37	0.451				
	Post-test II	2.33	0.474				

Results showed a high-significant differences in knowledge scores between pretest and posttest one (p=0.001). The outcomes of study show an enhancement in the knowledge of nurses at the Post-test 1 (mean ± sd= 2.37±0.451) comparing to pretest level (mean ± sd=1.58±0.402).

While, there were no significant difference in knowledge scores between Post-test one (Mean ±SD=2.37±0.451) and posttest two (Mean ±SD =2.33±0.474) at (p=0.326).

Table 4-2-8: Response of nurses at Pre-test Concerning to Knowledge About Nutrition of Oncology Patients (Control Group)

	items	M.s. ± SD	Ass.
1	Eating sugar worsens cancer.	2.03±0.889	Moderate
2	All oncology patients consume a diet rich in energy.	1.56±0.773	Poor
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite	1.53±0.730	Poor
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains	1.33±0.606	Poor
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract	1.40±0.770	Poor
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.	1.33±0.660	Poor
7	All oncology patients consume small portions of food during the day	1.33±0.606	Poor
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods	1.43±0.678	Poor
9	All oncology patients consume a diet rich in protein.	1.43±0.678	Poor
10	All oncology patients need to take oral nutritional supplements.	1.20±0.484	Poor
11	All cancer patients need to drink more fluids.	1.53±0.819	Poor
12	All oncology patients should achieve and maintain a healthy weight.	1.40±0.723	Poor
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss	1.46±0.776	Poor
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.	1.56±0.773	Poor
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.	1.36±0.668	Poor
16	Excessive weight loss and poor nutritional status can occur early in the course of	1.33±0.660	Poor

	some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.		
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.	1.46±0.730	Poor
18	Additional weight gain is a frequent complication of treatment	1.26±0.583	Poor
19	Cancer can cause profound metabolic and physiological changes that can affect nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).	1.26±0.583	Poor
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.	1.16±0.461	Poor
21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight	1.76±0.817	moderat e
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food	1.56±0.773	Poor
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.	1.53±0.730	Poor
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.	1.33±0.660	Poor
25	Symptoms of anemia include pallor or yellowing of the face.	1.43±0.678	Poor
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.	1.33±0.606	Poor
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).	1.36±0.668	Poor
28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef broth, fish broth, and broth).	1.53±0.681	Poor
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.	1.53±0.776	Poor
30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.	1.33±0.546	Poor
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).	1.43±0.678	Poor
32	Using bone broth with soup is a tip for adding more protein to your diet	1.46±0.681	Poor
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.	1.46±0.730	Poor
34	Whole milk is a useful meal for cancer patients.	1.26±0.449	Poor
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.	1.53±0.730	Poor
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.	1.33±0.546	Poor

Results revealed the responses of the sample of study at the pretest with regard knowledge towards nutrition of oncologic patients. The findings indicate that the nurses in the control group poored in all the items investigated (M.s.=1-1.66), with the exception of item #1, where the response was moderate (M.s.=1.67-2.33).

Table 4-2-9. Distribution the Overall Nurses Knowledge about Nutrition of Cancer Patients at Pretest for Control Group

Weighted	Freq.	%	Mean ± SD
Poor Knowledge (M=36-60)	24	80.0	51.66 ± 13.399
Moderate Knowledge (M=61-84)	5	16.7	
Good Knowledge (M=85-108)	1	3.3	
Total	30	100.0	

Table 4-2-9 results show that the participants had a low knowledge level throughout the pre-test period (mean ± sd=51.66±13.399) with regard nutrition of oncologic patients (n=24; 80%).

Table 4-2-10: Distribution of Control Group at Post-test Concerning to Nutrition Knowledge of Cancer Patients.

items		M.s. ± SD	Ass.
1	Eating sugar worsens cancer.	2.36±0.764	Good
2	All oncology patients consume a diet rich in energy.	1.46±0.681	Poor
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite	1.46±0.681	Poor
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains	1.43±0.678	Poor
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract	1.43±0.773	Poor
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.	1.50±0.776	Poor
7	All oncology patients consume small portions of food during the day	1.50±0.731	Poor
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods	1.53±0.819	Poor
9	All oncology patients consume a diet rich in protein.	1.46±0.730	Poor
10	All oncology patients need to take oral nutritional supplements.	1.43±0.727	Poor
11	All cancer patients need to drink more fluids.	1.36±0.668	Poor
12	All oncology patients should achieve and maintain a healthy weight.	1.36±0.668	Poor
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss	1.43±0.727	Poor
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.	1.56±0.727	Poor
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.	1.67±0.844	Poor
16	Excessive weight loss and poor nutritional status can occur early in the course of some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.	1.63±0.850	Poor
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.	1.68±0.808	Poor
18	Additional weight gain is a frequent complication of treatment	1.34±0.660	Poor
19	Cancer can cause profound metabolic and physiological changes that can affect	1.36±0.668	Poor

	nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).		
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.	1.23±0.568	Poor
21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight	1.96±0.850	Moderate
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food	1.63±0.808	Poor
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.	1.67±0.844	Moderate
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.	1.46±0.776	Poor
25	Symptoms of anemia include pallor or yellowing of the face.	1.56±0.817	Poor
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.	1.53±0.776	Poor
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).	1.36±0.668	Poor
28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef broth, fish broth, and broth).	1.63±0.808	Poor
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.	1.63±0.808	Poor
30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.	1.56±0.773	Poor
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).	1.66±0.844	Poor
32	Using bone broth with soup is a tip for adding more protein to your diet	1.46±0.730	Poor
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.	1.67±0.802	Moderate
34	Whole milk is a useful meal for cancer patients.	1.46±0.628	Poor
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.	1.56±0.817	Poor
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.	1.46±0.730	Poor

Results revealed the responses of the sample of study at the Post-test with regard knowledge towards nutrition of oncologic patients. The results demonstrate that the nurses poored all of the analysed items on the post-test for the control group (M.s.=1-1.66), with the exception of the item numbers (21, 23 and 33), where the response was moderate (M.s.=1.67-2.33); and items number (1) nurses expressed good knowledge (M.s.≥2.34).

Table 4-2-11. Distribution of the Overall Nurses Knowledge about Nutrition of Oncology Patients at Post-test for Control Group

Weighted	Freq.	%	Mean ± SD
Poor Knowledge (M=36-60)	22	73.3	55.53 ± 15.368
Moderate Knowledge (M=61-84)	6	20.0	
Good Knowledge (M=85-108)	2	6.7	
Total	30	100.0	

The results revealed that the nurses had a knowledge deficit during the post-test period (mean ± sd=55.53±15.368) with regard nutrition of oncologic patients (n=22; 73.3%).

Table 4-2-12: Comparison of Pre- and Post-test Total Answers to Level of knowledge for the Control Group

	Weighted	M.s	SD	t	df	p-value	Sig
Control Group Knowledge	Pretest	1.43	0.372	1.382	29	0.178	NS
	Post-test	1.54	0.426				

Table 4-2-12 Results reveal that there was non-significant change in knowledge score between 2 times of measures (pretest and Post-test) (p=0.178), also there was no difference in nurses' knowledge at the Post-test (M SD=1.540.426) comparing to pretest (M SD=1.430.372).

Table 4-2-13: Comparison between the responses of Study Sample (Study and Control Groups) at two period of measurement (pre and posttest) about level of Knowledge in relation to Nutrition of Oncology Patients

	Weighted	M.s	SD	t	df	p-value	Sig
Pretest	Study	1.58	0.402	1.498	58	0.140	**NS**
	Control	1.43	0.372				
Post-test	Study	2.37	0.451	7.295	58	0.001	**HS**
	Control	1.54	0.426				

Displays a no statistically significant changes between knowledge of study group (mean ± sd= 1.58±0.402) and control group (mean ± sd = 1.43±0.372) in the pretest time of measurements (p=0.140). Whereas there is a highly statistically significantly changes between the mean score of study (mean ± sd= 2.37±0.451) and control (m ± s.d= 1.54±0.426) groups at the post-test time of measurements (p=0.001).

4.3. Differences in Two Test Knowledge of Nurses towards Nutrition of Oncology Patients with Regards Their Socio-Demographic Characteristics for Study Group

Table 4-3-1: Differences Between knowledge and Nurses Age (n=30)

Age	Source of variance	Sum of Square	DF	M^2	F	p-value
Pretest knowledge	Between Group	1.334	3	.445	3.430	.032 Ass.
	Within Group	3.371	26	.130		
	Total	4.705	29			
Post-test knowledge	Between Groups	.709	3	.236	1.180	.337 No-Ass.
	Within Groups	5.208	26	.200		
	Total	5.917	29			

Findings illustrated there are a significant difference in nurse's knowledge about nutrition of oncology patients with regard age at pretest (p=0.032); and there were no-significant differences in knowledge about

nutrition of oncology patients with regard nurses age at Post-test (p=0.337) after education programs.

Table 4-3-2: Differences Between Nurses' Knowledge and Gender (n=30)

Pretest knowledge	Gender	M	SD	t	DF	p-value	Sig
	Male	1.75	.40813	1.659	28	0.108	No-Ass.
	Female	1.50	.38283				
Post-test knowledge	Male	2.18	.38539	1.651	28	0.110	No-Ass.
	Female	2.46	.46202				

Findings illustrated there were no-significant differences in knowledge of nurses about nutrition of oncology patients at two period of measurements pretest (p=0.108) and posttests (p=0.110) after educational programs with regard male and female nurses.

Table 4-3-3: Differences between nurses' knowledge and nurses place of residence (n=30)

Pretest knowledge	**Residents**	**M**	**S.D**	**t**	**DF**	**p≤ 0.05**	**Sig**
	Rural	1.44	.155	1.089	28	0.285	No-Ass.
	Urban	1.62	.445				
Post-test knowledge	Rural	2.20	.508	1.129	28	0.268	No-Ass.
	Urban	2.42	.432				

Findings illustrated there were no-significant differences in nurse's knowledge about nutrition of oncology patients at two period of measurements pretest (p=0.285) and posttests (p=0.268) after educational programs with regard rural and urban residents.

Table 4-3-4: Differences between nurses' knowledge and level of their education (n=30)

Education Level	**Sources of variance**	**Sum of Square**	**DF**	**M^2**	**F**	**p≤ 0.05**
Pretest knowledge	Between Group	.262	2	.131	.796	.046 Ass.
	Within Groups	4.443	27	.165		
	Total	4.705	29			
Post-test knowledge	Between Groups	.222	2	.111	.526	.597 No-Ass.
	Within Groups	5.695	27	.211		
	Total	5.917	29			

Finding illustrated there are statistically significant difference in nurse's knowledge about nutrition of oncology patients with regard education level at pretest (p=0.046); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurse's education level at Post-test (p=0.597) after education programs.

Table 4-3-5: Distribution the nurses' knowledge and years of experience (n=30)

Years of experience	Sources of variance	Sum of Squares	DF	M^2	F	p≤ 0.05
Pretest knowledge	Between Group	1.392	2	.696	5.674	.009 Ass.
	Within Groups	3.313	27	.123		
	Total	4.705	29			
Post-test knowledge	Between Groups	.588	2	.294	1.488	.244 No-Ass.
	Within Groups	5.330	27	.197		
	Total	5.917	29			

Finding illustrated there were a significant difference in knowledge of nurse about nutrition of oncology patients with regard years of experience at pretest (p=0.009); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurse's years of experience at Post-test (p=0.244) after education programs.

Table 4-3-6: Differences in Nurses Knowledge and Years of Experience in Oncology Unit (n=30)

Experience in oncology	Sources of variance	Sum of Square	DF	M^2	F	p-value
Pretest knowledge	Between Group	.764	1	.764	5.426	.027 Ass.
	Within Groups	3.941	28	.141		
	Total	4.705	29			
Post-test knowledge	Between Groups	.060	1	.060	.287	.597 No-Ass.
	Within Groups	5.857	28	.209		
	Total	5.917	29			

Finding in table 4-4-6 illustrated there are a significant difference in knowledge of nurses about nutrition of oncology patients with regard years of experience in oncology unit at pretest (p=0.027); and there were

no-significant differences in knowledge about nutrition of oncology patients with regard nurse's years of experience in oncology unit at Post-test (p=0.597) after education programs.

Table 4-3-7: Differences in nurses' knowledge and training sessions (n=30)

Training sessions	Sources of variance	Sum of Squares	DF	M^2	F	p-value
Pretest knowledge	Between Group	.531	2	.265	1.717	.199 No.Ass.
	Within Groups	4.174	27	.155		
	Total	4.705	29			
Post-test knowledge	Between Groups	.011	2	.005	.024	.976 No-Ass.
	Within Groups	5.907	27	.219		
	Total	5.917	29			

Finding illustrated there were a significant difference in knowledge of nurses about nutrition of oncology patients with regard training sessions at pretest (p=0.199); and Post-test (p=0.976) after educational program.

Chapter Five

Discussion of the Study Results

Chapter Five

Discussion of the Study Results

This chapter deals with the interpretation of the results through the; data have been analyzed and interpreted according to the study objectives. The educational programs are designed to provide nurses knowledge towards nutrition of oncologic patient's center in Al-Diwaniyah Specialized Oncology Center.

5.1. Socio-Demographic Characteristics

Nurses Age

Table 4.1 result shows participants' ages; the means of age of nurses in the study groups is (M± SD25 ± 7.694), with ages 20-29 years old accounting for the biggest proportion (n=25; 83.3 percent). While the means of age of the nurses in the control groups is (Mean and SD= 28 ± 7.672), the age group 20-29 years old has the largest proportion of nurses (n=19; 63.3 percent). In both groups, there were no significantly different in age categories for nurses (p=0.130). the absence of a significant difference means that the sample is homogeneous between the two groups, because most of them are diplomas holders so they are from the youth group. These findings come with a study conducted in Jordin by Sharour, (2019), the mean age for participants is 29.5 and the ages group of 20-30 years old represent the majority. this findings is supported by a study conducted in Iraq, which found that nurses are with age group of (20-29) years (Salih, 2019). But, this finding is not consisted by study conducted for improving the quality of nursing care for patients with leukemia which found that the study sample mean age was above than 30years(Shafik & Abd Allah, 2015), also these findings are not consisted with a study conducted in Iraq, which found that the nurses working in oncology units had age more than 30 years, (Ali & Jaddoue, 2016).

Nurses Gender

In relation to gender, female nurses largely dominated mainly in the study group (n=20; 66 percent). The absence of a high significant difference means a strong point that serves the educational programs for the purpose of comparison. These findings are come consisting with Al Kalaldeh & Shahein, (2014) who found in their participants the female nurse were more than male. also these findings consisted with a study conducted in Iraq, which found that females are more than males (Ali & Jaddoue, 2016). But, these findings unsupported by another study conducted in Iraq, which found that males and females are equal number (male= 50% and female= 50%) (Salih, 2019).

Nurses' places of Residents

The urban resident was predominated among nurses in each group study-control (n=23; 76.7%) and (n=18; 60%) respectively. There is no-significantly difference in residents for nurses both ($p<0.171$). These findings comes consisting with (Ismael & Baiee, 2020) in their 2018 Revision of World Urbanization Prospects, they discovered that 55 percent of the world's population lives in cities, with that percentage predicted to rise to 68 percent by 2050. According to projections, urbanization, or the gradual shift in human population from rural to urban areas, combined with global population growth could add more 2.5 billion people to urban areas by 2050, with Africa and Asia accounting for nearly 90percent of this increase, as per a new United Nations data set released.

Nurses Education Levels

In regard with education levels, about half of nurses were diploma graduated in study group (n=13; 43.3%). While, most of nurses in control group were distributed a diploma and college of nursing graduated (n=10; 33.3%) for both. There no-significant difference in educational levels for both group ($p<0.757$). Due to more schools that award such degrees, the diploma degree was thought to be the largest proportion among nurses in health organizations (table 4-1-4). These finding agree

with Theilla et.al (2016) who did Assessment, Knowledge and Perceived Quality of Nutrition Care they showed that a diploma degree was (50%) in their nursing qualification and 29% had a nursing collage. Also these findings supported by a study conducted for improving the quality of nursing care for patients with leukemia which found that most of the nurses at oncology units had nursing institute graduated (Shafik & Abd Allah, 2015).also, These findings was also supported by a study conducted for assessment nurses knowledge and practice regarding educational needs for Patients with Leukemia which found that most of nurses had diploma degree in nursing (Taha et al،.2017).But the findings are unsupported by a study conducted in Iraq which found that (45%) of them were graduated from nursing high school which is the highest percentage among educational level (Salih, R. 2019).

Nurses Experience

Concerning years of experience, nurses in the control study expressed that < 5 year of experience (n=25; 83.3%) and (n=18; 60%) correspondingly the study and control groups. Nurses' years of experience did not differ significantly between the two groups (p0.360). Years of experience in oncology unit, for a less than 5 years of experience in oncology unit (n=29; 96.7%) and (n=21; 70%) correspondingly in both group. Nurses' years of experience did not differ significantly between the two groups (p0.061). (table 4-1), this may due to nurses were young and institute graduated, so we find them with fewer experience years. These finding come consisting with a study conducted in Iraq by (Ahmed & suad, 2018). The result of the study were (66.7%) in study group, (63.3%) in control group have (5) years and less of working in oncology wards, this may interprete that most of oncology nursing staff are new and younger employees with low experiences.these findings supported by a study of (Salih, 2019) conducted for improve Nurses' Knowledge and Practice toward Nursing Management for Patient with leukemia's undergoing

Chemotherapy in Baghdad Teaching Hospital findings demonstrated that more than half of nurses reporting (1-5) years of experience for working in nursing field (52.5%), more of their working years were in hematology ward that refer to (1-5) years with percentage of (72.5%). Also these findings come in line with a study condacted in jordin by Sharour, (2019). The study group had a mean experience of 2.9 years (SD = 0.79) whereas the control group had a mean experience of 3.2 years (SD = 0.81).

Nurses Training Courses

Unfortunately, Nurses in study and control groups expressed that they had good chance for attending training sessions in oncology unit (n=19; 63.3%) and (n=17; 56.7%). There no-significant differences in exposure training sessions of nurses of both groups ($p<0.480$). (Table 4-1-7), this result reveals the need the enhancement of continuous nursing education regarding nursing nutritional instructions for patients with Cancer. Thes finding comes with Al Kalaldeh & Shahein (2014), the majority (82.3%) of nurses were not attending any training session because hospital policy does not care about this activity.

Also This finding agrees with Theilla et.al (2016) who Assessment, Knowledge and Perceived Quality of Nutrition Care amongst findings showed More than half (54%) had advanced nurse training while 16% had received specific training in nutrition care in the five years prior to the study. these findings supported a study by (ahmed&suad,2018) Concerning participation in training courses in the field of chemotherapy treatment, (63.3%) in the study and control group had no participation in training courses, this, may indicate the low level of the role of continuing education units in hospitals.

This result agrees with (Mohammed & Aburaghif, 2018) point of view who presented that (62.9%) of nurses had no participation in training courses. While it disagrees with (Ulas et al., 2015) who revealed that the highest percent (60%) of study sample have training courses.

This, may indicate the lacking of the effective role of continuing education units in hospitals under the study, by the other hand attending continuous nursing education courses and training programs have the benefits of maintenance nurses up-to-date and refining their knowledge in oncology nutrition and encourage the use of evidence base practice which is highly requested approach for high quality cancer patient care.

5.2. Nurses' Knowledge About Nutrition of Cancer Patients (Study and Control Groups)

5.2.1. Nurses Knowledge Towards Nutrition of Oncology Patients at Pretest for Each Group (Study and Control).

A total of 36 items have been used to assess respondents' knowledge of nutrition for oncologic patient, with an average score of 85-108 indicating a high level of knowledge, 61-84 indicating a moderate level of knowledge, and 36-60 indicating a poor level of knowledge. At the pretest phase of assessment for both research groups, nurses acknowledged a low knowledge level about diet of oncologic patient, according to the present study results (MEAN ± SD=57.06 ± 14.500) (table 4-2-2) and control group (Mean ± SD=51.66 ± 13.399) (table 4-2-9). This is a worrying finding for dealing with nutritional status for cancerous patients.

The is no-statistically significant differences between study (Mean ± SD = 1.58±0.402) and control (Mean ± SD = 1.43±0.372) group in the pretest time of measurements (t=1.498; p=0.140) with regard nurses' knowledge towards nutrition of oncologic patients (table 4-2-13). The research results demonstrate that the nurses in the study group have same degree of poor knowledge as that of the nurses in the control group.

The nurses' lack of knowledge about proper nutrition of oncology patients could be due to several factors: they do not continuously develop and update their knowledge; most nurses working headily in health institutions and have no time to read, so they do not use evidence base

practice; as a result, of that they have are unable to recall high quality information, related to nutritional status of cancer patient.

The foregoing present study findings are in agreement with previous studies, which reported similarly low levels of nurses‟ knowledge about nutrition of oncologic patients. Thus, merel et.al (2017), demonstrated in their findings a generally nurses expressed a deficient knowledge, with less than two-fifth of the nurses having satisfactory knowledge about nutrition of oncologic patients.

Nurses in both the study (mean [M]= 8.00, SD= 1.65) and control groups (M= 6.00, SD= 1.65), according to research by Jordin, Sharour, (2019), lacked nutritional evaluation and guidance expertise prior to the intervention by education programmer.

Our results go the same line, In a study in Rwanda Kanyamuhunga et.al(2021) 160 nurses participated in the study 56% of responders had poor overall knowledge towards nutrition cancer patient in a mean of score 5.76 (SD± 2.08). Similar finding was report by Morsy et.al (2014) who studies Nurses' knowledge and practices about Palliative Care among Cancer Patient in a University Hospital, the studied nurses had unsatisfactory knowledge level, with mean scores of 57.7% of 26.53 + SD= 613.28.

In a study in Sweden Persenius,(2008) assessments of the patients' nutritional condition seems to be a weak link in the nutritional nursing care. Nutritionally compromised patients may hereby remain unidentified and thus not properly cared for. Furthermore, the results of the screening and assessment must be a base for the patient's care plan.

Oncology nurses see people with cancer regularly from the moment of diagnosis through treatment completion, and they have more time with survivor than oncologist as well as other healthcare professionals. As a result, they have plenty of opportunity to give proper nutritional care to people with cancer, as well as to address issues that may arise before and

after treatment, such as fluid consumption, food supplement, or seeing a nutritionist (Ewing, 2015).

There are evidences that proper nutrition of cancer patients is considered as vital role for diminishing morbidity & mortality in patients undergoing chemotherapy(William NF et al ., 2018).

This poor knowledge of nursing staff about nutritional care of Iraqi oncology patients as compared to the findings of other researchers outside Iraq might be related to other factors such as missed of this teaching materials from the syllabus of Iraqi nursing academic institutions , according to the researcher point of view, most of nursing colleges syllabi have a very limited training materials about oncology nursing and about the nutritional status of cancerous patients, attention should be paid to this weakness point, because good and high quality educating materials during the undergraduate is essential to improve the competencies of future graduated nurses in the field of nutrition knowledge for patients with chronic serious chronic diseases such as cancer patients, this can make positive attitudes and efficient practices in this career, sufficient and efficient continuous education for nurses in hospitals and oncology units (on job training) is strongly requested to overcome this serious insufficient knowledge of health care providers of oncology patients in our country. This shortcoming may also be related to extreme shortage of qualified experts in the field of nutrition both preventive and therapeutic nutritionists. Poor research activities (both in undergraduates and post graduates nursing studies in this field may be considered as an important factor related to this nursing health problem.

5.2.2. Nurses Knowledge Towards Nutrition of Oncology Patients at Post- Test for Each Group (Study and Control)

At the posttest phase of assessment, nurses in the present research indicated a high degree of knowledge about nutrition for cancer patient (MEAN ± SD=85.33 ± 16.261) after application of education

programs (table 4-2-4). At the posttest time of assessment, nurses in the control group had a low knowledge level (M SD=55.53± 15.368). (table 4-2-11). This data indicates that the teaching programs was successful, since nurses in the research group indicated satisfaction.

There is a statistically significant change concerning the study (M ± S. D= 2.37±0.451) and control (M ± S. D= 1.54±0.426) group at the posttest time of measurements (t-test= 7.295; df=58; p=0.000) with regards knowledge towards nutrition of oncology patients (table 4-2-13). The results of the research demonstrate that after executing the education programsme, the study group (30 nurses) increased their knowledge score as when compare to the control group (30 nurses).

There is a widely known theory that says (There are a significant difference in nurses' knowledge between study control and group group). Nurses in the research group benefited significantly from a nutrition education programs for cancer patients. According to this regard, the rate of nurses who were willing to give nutrition support to cancerous patients was 66.7% (table 4-2-4) and their knowledge was not influenced by the time that has been passed (p=0.326) (table 4-2-7). It has been established that a significant number of nurses will participate and benefit from training program tailored just for them. However, research is needed to determine the rate of success of these programs and their impact on oncology center knowledge.

These findings back up those of (Bjerrum et al.2017)who found that training program improve nurses' performance, knowledge about nutrition, which illustrated there were significant differences between nurses who participated in the intervention and control groups in terms of knowledge (P =0.001), in the direction of nutrition The nurses were more conscious of their specialized function following the training programs , which they defined as promoting the acceleration of nutrition care. They now felt and behaved responsibility toward their coworkers, and they

remarked that they had received more respect in order to fulfil the function: 'I now have a role that I didn't have before.' They know I know what I'm talking about and that I'm capable of doing so.' They made an effort to be present on the ward and available for guidance. "If my colleagues ask advice, I don't tell them that I don't have time and that they would have to handle it themselves," they said. After the programs, I wouldn't dream of it, therefore I feel really accountable(Bjerrum et al.2017).

Attending standard training programs on nursing knowledge about nutrition had a positive effect. This finding is comparable with the finding of the studies conducted in USA (Malone, 2015), Jordin and Egypt (Al Kalaldeh & Shahein, 2014) (Morsy et al. 2014).

This might be due to the fact that training may increase their familiarity with standards of knowledge about nutrition, and may enhance their knowledge toward nutrition, and may also add their value of knowledge about nutrition. So, training will be helpful to improve knowledge about nutrition.

5.2.3. Statistical Differences in Two Test Knowledge of Nurses Towards Nutrition of Oncology Patients with Regards their Socio-demographic Characteristics for Study Group

5.2.3.1. Nurses Knowledge and Age group

Findings of this study illustrate there is significant differences in nurses' knowledge about nutrition of oncology patients with regard age at pretest (p=0.032); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurses age at posttest (p=0.337) after education programs for vit d3 and ca++ knowledge.

This finding means that the nurses knowledge towards nutrition of oncology influenced by the different age groups, Young oncologist nurse, nurses with less education, and nurses that counselled cancer survivor throughout treatment all reported having inadequate nutritional expertise. (Van Veen et al.,2017)

5.2.3.2. Nurses Knowledge and Gender

Findings illustrated there are no-significant differences in nurses' knowledge about nutrition of oncology patients at two period of measurements pretest (p=0.108) and posttests (p=0.110) after educational programs with regard male and female nurses (table 4-3-2).

The mean knowledge scores for male nurses in pre-posttest (1.75and 2.18) respectively, which were about the same knowledge scores for female nurses in pre-posttest (1.50and 2.46). this means that, there is no difference in poor knowledge (pretest) with regards male and female nurses; and good knowledge (posttest) after educational programs. In other words, nurses' knowledge about nutrition of oncology patients does not depend on gender, but rather on the educational programs. also, El-Aqoul et al. (2020), depicted in their findings that the gender of nurses did not influence their knowledge towards importance of nursing nutrition of oncology patients.

5.2.3.3. Nurses Knowledge and Residents.

Findings illustrated there were no-significant differences in nurses' knowledge about nutrition of oncology patients at two period of measurements pretest (p=0.285) and posttests (p=0.268) after education programs with regard rural and urban residents. This finding agree with the finding of (Ke et.al.,2008).

5.2.3.4. Nurses Knowledge and Education Level.

Findings illustrated there are significant differences in nurses' knowledge about nutrition of oncology patients with regard education level

at pretest (p=0.046); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurse's education level at posttest (p=0.597) after educational programs (table 4-3-4).

These results confirm that nurse's knowledge about nutrition of oncology patients is highly dependent on the educational level. High degree of education had been significantly increased knowledge scores. This finding is supported by Theilla et al,.(2016). Findings showed that the educational level of nurses had significant association with knowledge about nutrition.

5.2.3.4. Nurses Knowledge and Years of Experience

Findings illustrated there are significant differences in nurses' knowledge about nutrition of oncology patients with regard years of experience at pretest (p=0.009); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurses' years of experience at posttest (p=0.244) after application the education programs. (Table 4-3-5).

This finding supports Al Kalaldeh & Shahein's (2014) results in Jordin. Nurses scored higher in applying physical examination and anthropometric assessment because they were consistent in their knowledge, responsibility, and documentation of nutritional assessment. Biochemical tests were utilized more frequently by nurses, whereas biophysical measures were used less commonly. Biophysical assessment was adhered to better by nursing professionals with more clinical experience than new nurses.

This findings disagrees with Sharour, (2019) who stated there were no significant association between knowledge of nurses and their experience year. These results confirm that the knowledge of nurses does not differ with more or less years of experience, but rather it varies according to another factor (educational programs) that may increase or

decrease. There is no difference whether the years of experience have increased or decreased in relation to conducting the educational programs in increasing the knowledge related to knowledge about nutrition of oncology patients.

5.2.3.5. Nurses Knowledge and Years of Experience in Oncology Unit

Findings illustrated there were significant differences in nurses' knowledge about nutrition of oncology patients with regard years of experience in oncology unit at pretest (p=0.027); and there were no-significant differences in knowledge about nutrition of oncology patients with regard nurses' years of experience in oncology unit at posttest (p=0.597) after education programs (Table 4-3-6).

These findings come in line with (Prince, 2013) Findings who showed that the years of experience in oncology unit of nurses had significant association with knowledge about nutrition.

5.2.3.6. Nurses Knowledge and Training Courses

Findings illustrated there were no-significant differences in nurses' knowledge about nutrition of oncology patients with regard training sessions at pretest (p=0.199); and posttest (p=0.976) after educational programs (Table 4-4-7). these finding agree with (Bachrach-Lindström et al. (2007) who stated that the training sessions were insignificantly associated with nurses knowledge towards nutrition. Training courses are not considered as factors affecting nurses' knowledge about of oncology patients, because training courses affect practices. Through our results, most of the nurses did not attend training courses (63.3%) (table 4-1-7), so they have in the pretest (poor knowledge), while when attending the educational programs their knowledge did not differ only in its increase. That is, educational programs increase their knowledge, whether they have training courses or not.

Chapter Six

Conclusions

and

Recommendations

Chapter Six

Conclusion and Recommendations

6.1. Conclusion:

In light of the results discussion and their interpretations, our study concludes that:

6.1.1. The majority of study sample were within the age group (20-29 years), are holding graduated a Diploma most of them they had experience (<5) years in the nursing field of oncology, Majority of the participants are females and most of them live in urban area, more than half of don't participant in training.

6.1.2. There were no variations the level of knowledge between the study group and control group in the pretest.

6.1.3. Study group knowledge of oncology nurses about healthy diet and micronutrient supplement (Vit D and Ca) improved following exposure to the education programs on nursing nutrition of oncologic patients. The control group showed no improvement knowledge throughout the pre- and posttest.

6.1.4. No-Statistical significant associations between level of knowledge and followings independent variable (age groups, gender, educational levels, number of years of service and number of years of work in oncology wards) p value > 0.05.

6.2. Recommendations:

The present study could recommend, based on the above stated conclusion, that:

6.2.1. There is a strong need to establish nutritional academic nursing specialty in our country such as one year post graduate diploma for our academic nurses in the field of therapeutic and preventive nutrition.

6.2.2. Nurses' knowledge, in nutrition of oncologic patients should be paid high attention, restudied and mounter and evaluated periodically by health authority.

6.2.3. Training nurses especially juniors through continuing nursing education curses (on job training) in collaboration with the training and development departments in Iraqi health directors.

6.2.4. Proper reporting and continues collection of data regarding nutrition of patients with NCDs in colluding cancer at district, provincial, and national levels in order to monitor the Micronutrients and Macronutrients malnutrition's. This can be done by the epidemiologic surveillance teams in the public health department in AL-Diwaniyah governorate in order to improve health information system.

6.2.5. Establishing nutrition units (therapeutic and preventive nutrition) in primary health care centers and general hospitals to convincing the policy health makers through seminars, meetings and conferences to increase their level of nutritional awareness of health care provider.

6.2.6. Further large-scale community based analytic studies (cohort studies) and randomized control trials are requested to identify the causal relationship between dietary factors and prognosis of different malignant diseases.

6.2.7. Large scale nationwide intervention study should be planned, funded and implemented to confirm the importance of new educational nutritional programs for promoting oncology nurses Knowledge Attitudes and Practices in this field of nursing care.

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Appendix

University of Babylon
College of Nursing
Research Ethics Committee
Issue No: 34
Date: 2 / 3 /2021

جـــامـعة بـــابـــل
كـــلية التمريـــض
لجنة اخلاقيات البحث العلمي

Approval Letter

To,
Waleed Ali Armeh

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled "**Effectiveness of an Education Program on Nurses' Knowledge regarding Nutritional Instructions for Patients with Cancer at Oncology Center in AL-Diwaniyah Governorate.**"

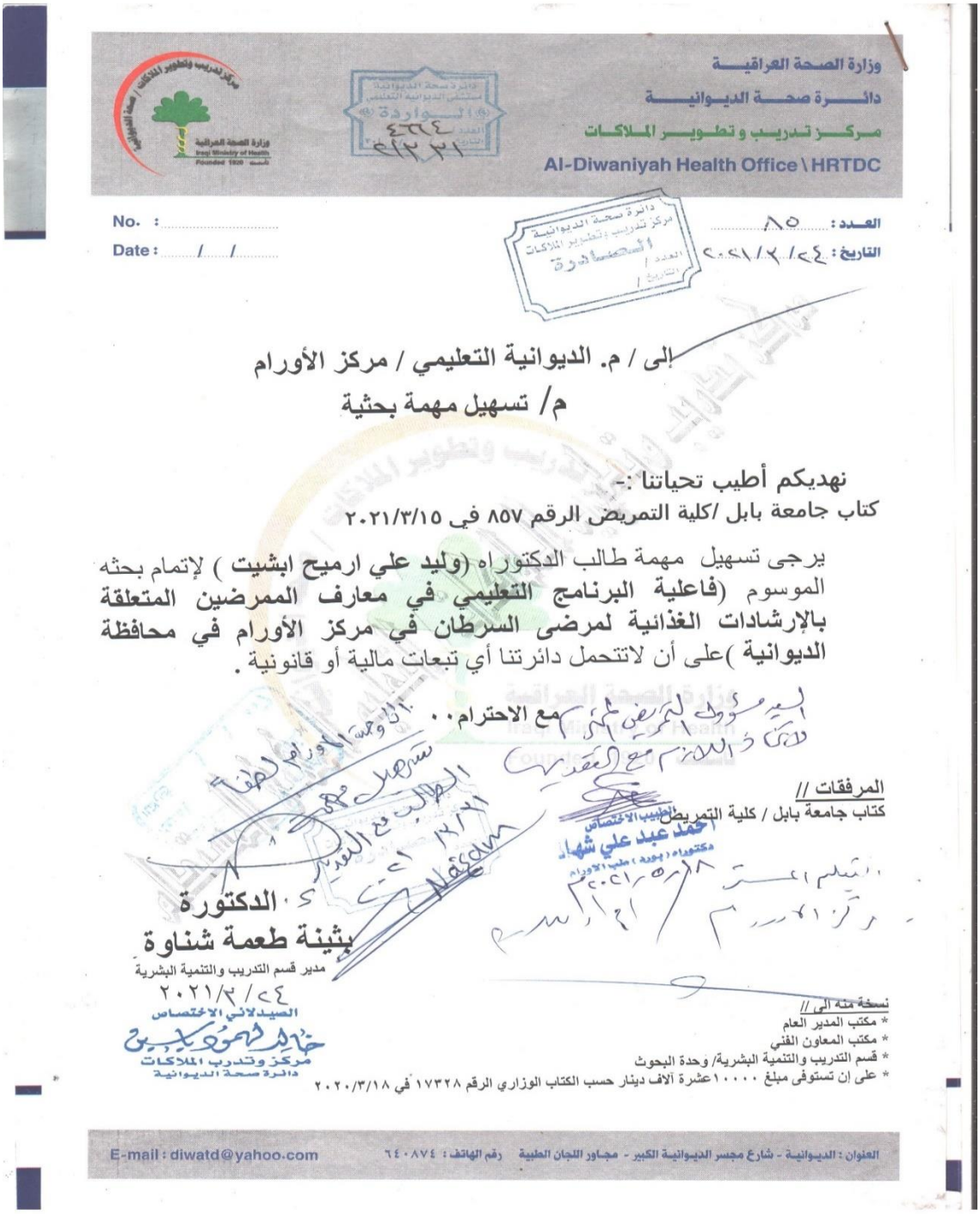
The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision:

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Salma K. Jehad
Chair Committee
College of Nursing
Research Ethical Committee
1 / 3 /2021



وزارة الصحة العراقية
دائرة صحة الديوانية
مركز تدريب و تطوير الملاكات
Al-Diwaniyah Health Office \ HRTDC

No. :
Date : / /

العدد : ٨٥
التاريخ : ٢٠٢١/٢/٢٤

إلى / م. الديوانية التعليمي / مركز الأورام

م/ تسهيل مهمة بحثية

نهديكم أطيب تحياتنا :-

كتاب جامعة بابل /كلية التمريض الرقم ٨٥٧ في ٢٠٢١/٣/١٥

يرجى تسهيل مهمة طالب الدكتوراه (**وليد علي ارميح ابشيت**) لإتمام بحثه الموسوم (**فاعلية البرنامج التعليمي في معارف الممرضين المتعلقة بالإرشادات الغذائية لمرضى السرطان في مركز الأورام في محافظة الديوانية**)على أن لاتتحمل دائرتنا أي تبعات مالية أو قانونية .

مع الاحترام..

المرفقات //
كتاب جامعة بابل / كلية التمريض

الطبيب الاختصاص
احمد عبد علي شهاد
دكتوراه (بوديه) طب الاورام

الدكتورة
بثينة طعمة شناوة
مدير قسم التدريب والتنمية البشرية
٢٠٢١/٢/٢٤

الصيدلاني الاختصاص
مركز وتدرب الملاكات
دائرة صحة الديوانية

نسخة منه الى //
* مكتب المدير العام
* مكتب المعاون الفني
* قسم التدريب والتنمية البشرية/ وحدة البحوث
* على إن تستوفى مبلغ ١٠٠٠٠عشرة آلاف دينار حسب الكتاب الوزاري الرقم ١٧٣٢٨ في ٢٠٢٠/٣/١٨

E-mail : diwatd@yahoo.com
العنوان : الديوانية - شارع مجسر الديوانية الكبير - مجاور اللجان الطبية رقم الهاتف : ٦٤٠٨٧٤

Ministry of Higher Education and Scientific Research
وزارة التعليم العالي والبحث العلمي
جمهورية العراق
University of Babylon
College of Nursing
جامعة بابل
كلية التمريض
لجنة الدراسات العليا

Ref. No. :
Date: / /

العدد : ٨٥٧
التاريخ : ١٥ / ٢ / ٢٠٢١

الى / دائرة صحة الديوانية /مركز الاورام
م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الدكتوراه (وليد علي ارميح ابشيت) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث الموسوم :

فاعلية البرنامج التعليمي في معارف الممرضين المتعلقة بالارشادات الغذائية لمرضى السرطان في مركز الاورام في محافظة الديوانية .

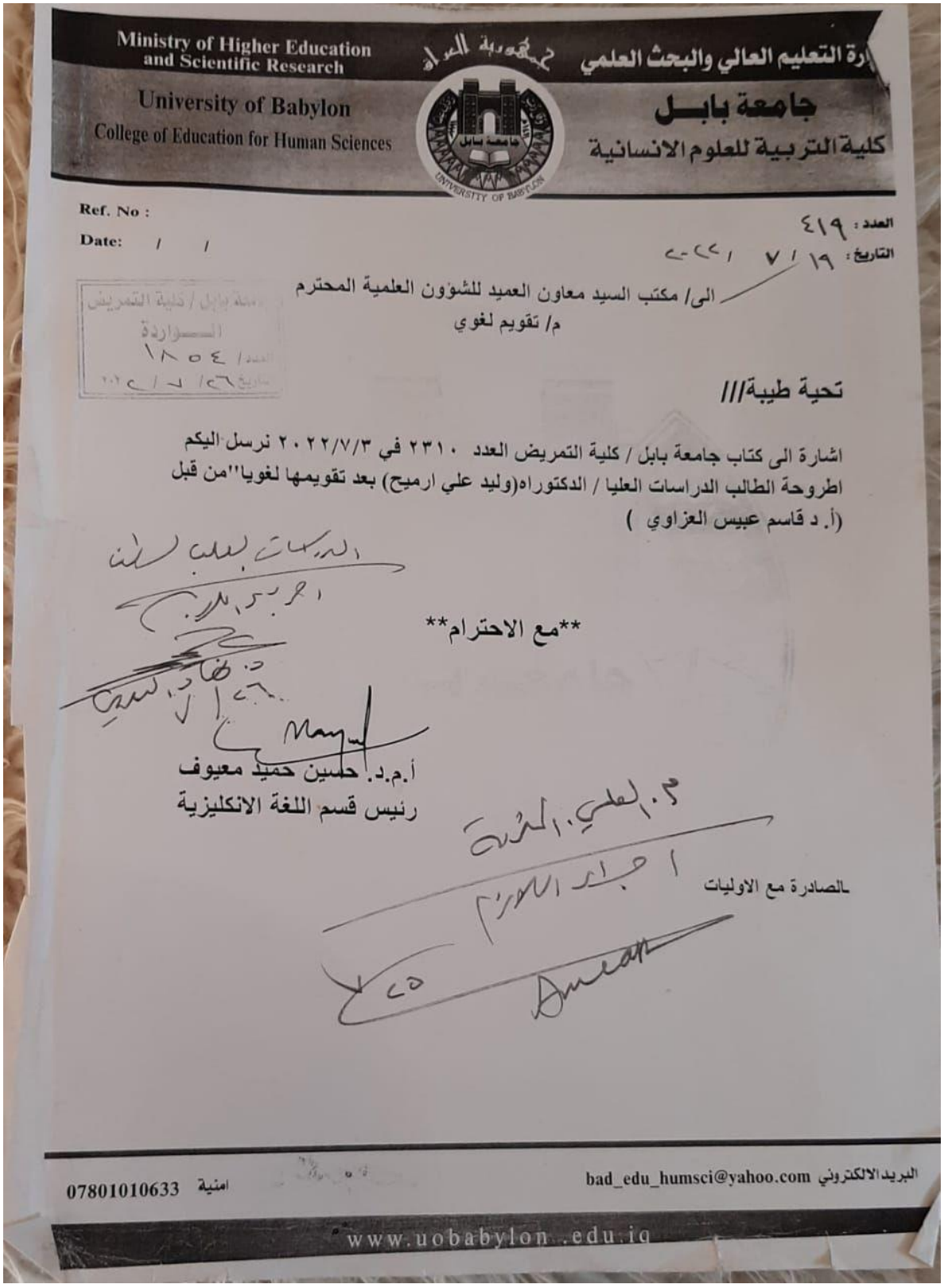
Effectiveness of an Education Program on Nurses' Knowledge Regarding nutritional instructions for Patients with Cancer at oncology center in AL-Diwaniyah.

مع الاحترام ...

ا.م.د. حسام عباس داود
معاون العميد للشؤون العلمية والدراسات العليا
١٥/ ٣ /٢٠٢١

صورة عنه الى //
- مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
- لجنة الدراسات العليا
- الصادرة .

E-mail:nursing@uobabylon.edu.iq
وطني 07711632208
المكتب 009647711632208
www.uobabylon.edu.iq



Ministry of Higher Education and Scientific Research
University of Babylon
College of Education for Human Sciences

وزارة التعليم العالي والبحث العلمي
جامعة بابل
كلية التربية للعلوم الانسانية

Ref. No :
Date: / /

العدد : ٤١٩
التاريخ : ١٩ / ٧ / ٢٠٢٢

الى/ مكتب السيد معاون العميد للشؤون العلمية المحترم
م/ تقويم لغوي

جامعة بابل / كلية التمريض
الصادرة
العدد / ١٨٥٤
تاريخ ٢٦ / ٧ / ٢٠٢٢

تحية طيبة///

اشارة الى كتاب جامعة بابل / كلية التمريض العدد ٢٣١٠ في ٢٠٢٢/٧/٣ نرسل اليكم اطروحة الطالب الدراسات العليا / الدكتوراه(وليد علي ارميح) بعد تقويمها لغويا''من قبل (أ. د قاسم عبيس العزاوي)

مع الاحترام

أ.م.د. حسين حميد معيوف
رئيس قسم اللغة الانكليزية

الصادرة مع الاوليات

البريد الالكتروني bad_edu_humsci@yahoo.com
امنية 07801010633
www.uobabylon.edu.iq

وزارة التعليم العالي والبحث العلمي

جامعة بابل / كلية التمريض

فاعلية البرنامج التعليمي الغذائي في معارف الممرضين لمرضى السرطان في مركز الاورام في محافظة الديوانية

اعداد الطالب

وليد علي ارميح

اشراف

ا.د حسن علوان بيعي

(فاعلية البرنامج التعليمي الغذائي في معارف الممرضين لمرضى السرطان في مركز الاورام في محافظة الديوانية)

المحاضرة الاولى

عنوان المحاضرة :

مكان المحاضرة:

وقت المحاضرة: (45 دقيقة)

الوسائل التعليمية:

1 . محاضرة على ورق

2 . عرض شرائح توضيحية

3 . بوسترات

4 . مناقشة جماعية

حقائق رئيسية

توقّعت منظمة الصحة العالمية ازدياد حالات السرطان بنسبة 81% بحلول عام 2040 في البلدان المنخفضة والمتوسطة الدخل، فيما ستبلغ هذه النسبة على مستوى العالم 60% .

وفي العام 2018، سجلت منظمة الصحة العالمية 18.1 مليون حالة سرطان جديدة في جميع أنحاء العالم. وتتوقع المنظمة أن يصل الرقم إلى ما بين 29 و37 مليون حالة بحلول عام 2040.

وأشارت المنظمة إلى أن السبب الأساسي في ذلك هو أنّ هذه البلدان لم تخصص سوى موارد صحية محدودة لمكافحة الأمراض المعدية وتحسين صحة الأمهات والأطفال، ولأن الخدمات الصحية في هذه البلدان غير مجهزة للوقاية من السرطانات وتشخيصها وعلاجها.

1. تقع نسبة 70% تقريباً من الوفيات الناجمة عن السرطان في البلدان المنخفضة الدخل والمتوسطة الدخل.
2. تُعزى حوالي ثلث الوفيات الناجمة عن السرطان إلى تعاطي التبغ، وارتفاع نسبه كتلة الجسم، وتعاطي الكحول، وانخفاض مدخول الجسم من الفواكه والخضروات، وقلّة ممارسة النشاط البدني.
3. حالات العدوى المسببة للسرطان، مثل عدوى التهاب الكبد وفيروس الورم الحليمي البشري، مسؤولة عن 30% من حالات السرطان في البلدان المنخفضة الدخل والمنتمية إلى الشريحة الدنيا من الدخل المتوسط .

4. من الشائع ظهور أعراض السرطان في مرحلة متأخرة وعدم إتاحة خدمات تشخيصه وعلاجه، وخصوصاً في البلدان المنخفضة الدخل والمتوسطة الدخل. وتفيد التقارير بأن العلاج الشامل متاح في أكثر من 90% من البلدان المرتفعة الدخل، ولكنه غير متاح إلا في نسبة تقل عن 15% من البلدان المنخفضة الدخل .
5. لم يبلغ في عام 2019 إلا بلد واحد من كل 3 بلدان عن بيانات عالية الجودة عن معدلات الإصابة بالسرطان .

تعريف السرطان:

السرطان مصطلح عام يشمل مجموعة كبيرة من الأمراض التي يمكن أن تصيب أي جزء من الجسم، وهناك مصطلحات أخرى مستخدمة هي الأورام الخبيثة والتنشُّؤات. ومن السمات المميزة للسرطان التولّد السريع لخلايا شاذة تنمو خارج نطاق حدودها المعتادة وبإمكانها أن تغزو بعد ذلك أجزاءً مجاورة من الجسم وتنتشر في أعضاء أخرى منه؛ وتُطلق على العملية الأخيرة تسمية النقيلة، وتمثل النقائل أهم أسباب الوفاة من جراء السرطان .

المشكلة المطروحة

السرطان سبب رئيسي للوفاة في جميع أنحاء العالم، وقد أزهق أرواح 10 ملايين شخص في عام 2020. وفيما يلي أكثر أنواعه شيوعاً في عام 2020 (من حيث حالات السرطان الجديدة):

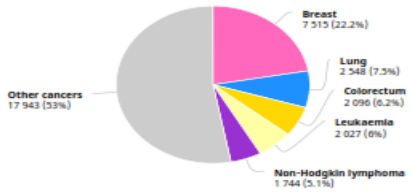
1. سرطان الثدي (2.26 مليون حالة)؛
2. وسرطان الرئة (2.21 مليون حالة)؛
3. وسرطان القولون والمستقيم (1.93 مليون حالة)؛
4. وسرطان البروستات (1.41 مليون حالة)؛
5. وسرطان الجلد (غير الميلانوما) (1.20 مليون حالة)؛
6. وسرطان المعدة (1.09 مليون حالة) .

وفيما يلي الأسباب الأكثر شيوعاً للوفاة من جراء السرطان في عام 2020:

1. الرئة (1.80 مليون وفاة)؛
2. والقولون والمستقيم (000 935 وفاة)؛
3. والكبد (000 830 وفاة)؛
4. والمعدة (000 769 وفاة)؛
5. والثدي (000 685 وفاة) .

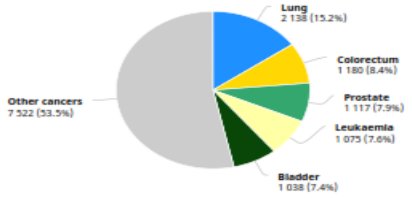
انتشار السرطان في العراق

Number of new cases in 2020, both sexes, all ages



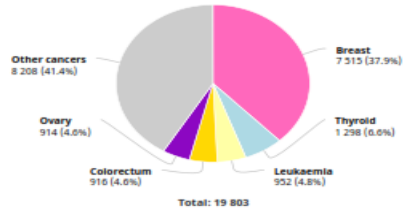
Total: 33 873

Number of new cases in 2020, males, all ages



Total: 14 070

Number of new cases in 2020, females, all ages



Total: 19 803

Summary statistic 2020

Geography

Numbers at a glance

Total population

40 222 503

Number of new cases

33 873

Number of deaths

19 786

Number of prevalent cases (5-year)

79 057

Data source and methods

Incidence

Country-specific data source: National
Method: Most recent rates from a single registry applied to 2020 population

Mortality

Country-specific data source: No data
Method: Estimated from national incidence estimates by modelling, using incidence:mortality ratios derived from cancer registry data in neighbouring countries

انتشار السرطان حول العالم2018

ما أسباب السرطان؟

ينشأ السرطان عن تحول خلايا عادية إلى أخرى ورمية في عملية متعددة المراحل تتطور عموماً من آفة سابقة للتسرطن إلى ورم خبيث. وهذه التغيرات ناجمة عن التفاعل بين العوامل الوراثية للشخص وثلاث فئات من العوامل الخارجية، منها ما يلي:

العوامل المادية المسرطنة، مثل الأشعة فوق البنفسجية والأشعة المؤيّنة؛

والعوامل الكيميائية المسرطنة، مثل الأسبستوس ومكوّنات دخان التبغ والأفلاتوكسين (أحد الملوّثات الغذائية) والزرنيخ (أحد ملوّثات مياه الشرب)؛

والعوامل البيولوجية المسرطنة، مثل الالتهابات الناجمة عن بعض الفيروسات أو البكتيريا أو الطفيليات .

يرتفع بشدة معدل الإصابة بالسرطان مع التقدم في السن، وذلك على الأرجح بسبب تراكم مخاطر الإصابة بأنواع محددة منه، والتي تزداد مع التقدم في السن. ويقترن تراكم مخاطر الإصابة بالسرطان بميل فعالية آليات إصلاح الخلايا إلى الاضمحلال كلّما تقدم الشخص في السن.

عوامل خطر الإصابة بالسرطان بأنواعه

تعاطي التبغ والكحول واتباع نظام غذائي غير صحي وقلّة النشاط البدني وتلوث الهواء من عوامل الخطر الرئيسية للإصابة بالسرطان (وغيره من الأمراض غير السارية).

وهناك بعض الالتهابات المزمنة التي تمثل عوامل خطر للإصابة بالسرطان؛ وهي مشكلة بارزة تحديداً في البلدان المنخفضة الدخل والمتوسطة الدخل. وقد نجمت نسبة 13% تقريباً من أنواع السرطان التي شُخِّصت في عام 2018 على نطاق العالم عن الإصابة بعدوى مسرطنة، ومنها جرثومة الملوية البوابية وفيروس الورم الحليمي البشري وفيروسا التهاب الكبد B وC وفيروس إبشتاين–بار (3).

ويزيد فيروسا التهاب الكبد B وC وبعض أنماط فيروس الورم الحليمي البشري من خطورة الإصابة بسرطان الكبد وعنق الرحم على التوالي، فيما تسفر الإصابة بعدوى فيروس العوز المناعي البشري عن زيادة كبيرة في خطورة الإصابة بأنواع أخرى من السرطان، مثل سرطان عنق الرحم.

الحد من عبء السرطان

يمكن الوقاية حالياً من نسبة تتراوح بين 30% و50% من حالات السرطان عن طريق تلافي عوامل خطر الإصابة بالمرض وتنفيذ الاستراتيجيات القائمة المسندة بالبيّنات للوقاية منه. ويمكن أيضاً الحد من عبء السرطان من خلال كشف المرض مبكّراً وتزويد المرضى المصابين به بقدر كاف من العلاج والرعاية، علماً أن فرص الشفاء من أنواع كثيرة من السرطان تزيد إذا شُخّصت مبكّراً وعُولِجت كما ينبغي.

الوقاية من السرطان

يمكن تقليل خطر الإصابة بالسرطان عن طريق ما يلي:

1. الإقلاع عن تعاطي التبغ؛
2. الحفاظ على وزن صحي للجسم؛
3. اتباع نظام غذائي صحي يشمل تناول الفواكه والخضروات؛
4. ممارسة النشاط البدني بانتظام؛
5. تجنّب تعاطي الكحول على نحو ضار؛
6. الحصول على التطعيم ضد فيروس الورم الحليمي البشري والتهاب الكبد B إذا كنت منتمياً إلى فئة يُوصى بتطعيمها؛
7. تجنب التعرض للأشعة فوق البنفسجية (الناتجة في المقام الأول عن التعرض لأشعة الشمس ولأجهزة التسمير الاصطناعية)؛
8. ضمان استخدام الإشعاع في الرعاية الصحية على نحو مأمون وملائم (لأغراض التشخيص والعلاج)؛
9. التقليل إلى الحد الأدنى من التعرض المهني للإشعاع المؤين؛
10. الحد من التعرض لتلوث الهواء داخل المباني وخارجها، بما في ذلك غاز الرادون (وهو غاز مشع ينتج عن الاضمحلال الطبيعي لليورانيوم، الذي يمكن أن يتراكم في المباني-المنازل والمدارس وأمكان العمل) .

الكشف المبكّر

يمكن الحد من وفيات السرطان إذا كُشفت حالاته وعُولجت مبكّراً. وفيما يلي عنصرا الكشف عن حالاته مبكّراً:

التشخيص المبكّر

من المُرجّح عند الإبكار في تشخيص السرطان أن يستجيب المُصاب به للعلاج، ويمكن أن يزيد احتمال بقائه على قيد الحياة ويقلل معدلات المراضة، وكذلك تكاليف علاجه الباهظ الثمن. ويمكن إدخال تحسينات كبيرة على حياة مرضى السرطان عن طريق الكشف عن المرض مبكّراً وتجنب تأخير الرعاية.

وفيما يلي المكونات الثلاثة للتشخيص المبكّر:

1. أن تكون على بينة من أعراض أشكاله، ومن أهمية التماس المشورة الطبية إذا ساورك القلق؛
2. إتاحة خدمات التقييم والتشخيص السريريين؛
3. إحالة المريض في الوقت المناسب للحصول على خدمات العلاج .

ويكتسي التشخيص المبكّر لأنواع السرطان المصحوبة بأعراض أهمية في جميع المواضع وفيما يخص معظم أنواعه. وينبغي تصميم برامج مكافحة السرطان بطريقة تحد من حالات التأخير في التشخيص والعلاج والرعاية وتتخطى الحواجز التي تعترضها.

الفرز

يهدف الفرز إلى تحديد الأفراد الذين تشير نتائج فحصهم إلى إصابتهم بنوع معين من السرطان أو المرحلة السابقة لإصابتهم به قبل ظهور أعراضه عليهم. وفي حال تحديد تشوهات أثناء الفرز، ينبغي أن يُتبع ذلك بإجراء مزيد من الاختبارات لإثبات التشخيص (أو نفيه)، كما ينبغي إحالة المريض للحصول على العلاج، عند اللزوم. وبرامج الفرز فعالة بالنسبة لبعض أنواع السرطان ولكن ليس كلها، وهي عموماً أكثر تعقيداً واستنزافاً للموارد من التشخيص المبكّر لأنها تتطلب معدات خاصة وكادر متخصص من الموظفين.

يستند اختيار المرضى المشمولين ببرامج الفرز إلى السن وعوامل الخطر لتجنب الدراسات المفرطة في نتائجها الإيجابية الزائفة. ومن أمثلة طرق الفرز ما يلي: اختبار فيروس الورم الحليمي البشري لكشف سرطان عنق الرحم؛

واختبار أخذ عينة نسيجية وفحصها والكشف عن سرطان عنق الرحم؛

والفحص البصري بحمض الخليك (VIA) لكشف سرطان عنق الرحم؛

وتصوير الثدي بالأشعة لفرز حالات سرطان الثدي في الأماكن التي تمتلك نظماً صحية متينة أو متينة نسبياً .

ويلزم ضمان جودة برامج الفرز والتشخيص المبكّر على حد سواء.

العلاج

لا غنى عن التشخيص الصحيح للسرطان لعلاجه كما ينبغي وبفعالية لأن كل نوع من أنواعه يتطلب مقرراً علاجياً محدَّداً، ويشمل علاجه في العادة العلاج الإشعاعي و/ أو العلاج الكيميائي و/ أو الجراحة. وتحديد الأهداف المنشودة من العلاج من أولى الخطوات الهامة، والهدف الأساسي من ذلك عموماً هو علاج السرطان أو إطالة عمر المصاب به إلى حد كبير. كما أن تحسين نوعية حياة المريض هدف هام يمكن تحقيقه عن طريق تزويد المريض بالدعم اللازم لصون عافيته البدنية والنفسية الاجتماعية والمعنوية وتزويده بالرعاية الملطفة في المراحل النهائية من إصابته بالسرطان.

وترتفع معدلات الشفاء من بعض أكثر أنواع السرطان شيوعاً، كسرطان الثدي وسرطان عنق الرحم وسرطان الفم وسرطان القولون والمستقيم، عندما تُكشف مبكّراً وتُعالج وفقاً لأفضل الممارسات.

كما ترتفع معدلات الشفاء من بعض أنواع السرطان، مثل أورام القنوات المنوية الخصوية وشتى أنواع سرطان الدم وأورام الغدد اللمفاوية التي تصيب الأطفال، إذا زُوّد مرضاها بالعلاج المناسب، حتى في حال انتشار الخلايا المسرطنة في أجزاء أخرى من الجسم.

الرعاية الملطفة

الرعاية الملطِّفة علاج يخفّف الأعراض الناجمة عن السرطان، ولا يشفيها، ويحسّن نوعية حياة المرضى وحياة أسرهم. ويمكن أن تساعد الرعاية الملطِّفة الناس على العيش بمزيد من الارتياح، وهي رعاية تمسّ الحاجة إليها في الأماكن التي ترتفع فيها نسبة المرضى المصابين بالسرطان في مراحل متأخرة من المرض تقلّ فيها فرصهم في الشفاء منه.

ويمكن بفضل الرعاية الملطِّفة تخفيف المعاناة الجسدية والنفسية الاجتماعية والمعنوية لدى نسبة تزيد على 90% من المرضى المصابين بالسرطان في مراحل متقدمة.

ولا غنى عن استراتيجيات الصحة العامة الفعالة والشاملة للرعاية المجتمعية والمنزلية من أجل تزويد المرضى وأسرهم بخدمات تخفيف الآلام والرعاية الملطِّفة.

ويُوصى بقوة بتحسين إتاحة المورفين المأخوذ عن طريق الفم لعلاج آلام السرطان التي تتراوح بين المعتدلة والوخيمة، التي تعاني منها نسبة تزيد على 80% من المصابين بالسرطان في مرحلته النهائية.

المحاضرة الثانيه

عنوان المحاضرة : التغذية السليمة أثناء علاج السرطان

مكان المحاضرة:

وقت المحاضرة: (45 دقيقة)

الوسائل التعليمية:

1 . محاضرة على ورق

2 . عرض شرائح توضيحية

3 . بوسترات

4 . مناقشة جماعية

معلومات عن التغذية أثناء علاج السرطان

توجيهات التغذية العامة

الحصول على السعرات الحرارية والبروتين

المكملات الغذائية

التحكم في الآثار الجانبية عن طريق التغذية

الوصفات

القوائم النموذجية

ان الهدف الاساسي من التغذية بصفة عامة هو إمداد الجسم بالعناصر الغذائية اللازمة و تزويده بالطاقة للقيام بالأنشطة اليومية. ستساعدك هذه المعلومات في الحصول على العناصر الغذائية المطلوبة في أثناء علاج السرطان. وهي تشرح توجيهات سلامة الأغذية المهمة والطرق التي من شأنها إضافة السعرات الحرارية والبروتين إلى نظامك الغذائي. كما أنها توضح تأثير علاجات السرطان المختلفة على تناولك للطعام وما يمكنك فعله للمساعدة في السيطرة على آثارها الجانبية.

معلومات عن التغذية أثناء علاج السرطان

تعتبر التغذية السليمة مهمة للغاية بالنسبة للمصابين بالسرطان. وهناك بعض التغييرات التي يمكنك إجراؤها الآن والتي تساعدك أثناء فترة العلاج. ابدأ باتباع نظام غذائي صحي. فسوف يمنحك ذلك الشعور بالقوة والعافية، ويجعلك تحافظ على وزن صحي، كما يساعدك على مكافحة العدوى. وقد يساعدك حتى في منع ظهور بعض الآثار الجانبية للعلاج أو السيطرة عليها.

بمجرد أن نبدأ العلاج، قد نجد صعوبة في اتباع نظام الغذائي المعتاد. قد تكون بحاجة إلى موازنة النظام الغذائي (إضافة أنواع مختلفة من الأطعمة والمشروبات) للحصول على التغذية التي تحتاجها. ومع ذلك لا توجد بحوث كافية لمعرفة ما إذا كانت الأنظمة الغذائية المقيدة (التي تتجنب أنواعًا معينة من الأطعمة أو العناصر الغذائية) آمنةً للأشخاص المصابين بالسرطان.

والشيء الأكثر أهمية هو التأكد من الحصول على السعرات الحرارية وكمية البروتين المطلوبة للمحافظة على قوة وعافية الجسد أثناء العلاج

ولهذا السبب، قد تبدو بعض المعلومات التي تتضمنها هذا المحاضرة مختلفةً للغاية عن توجيهات النظام الغذائي الذي يتتبعه المصاب في الغالب

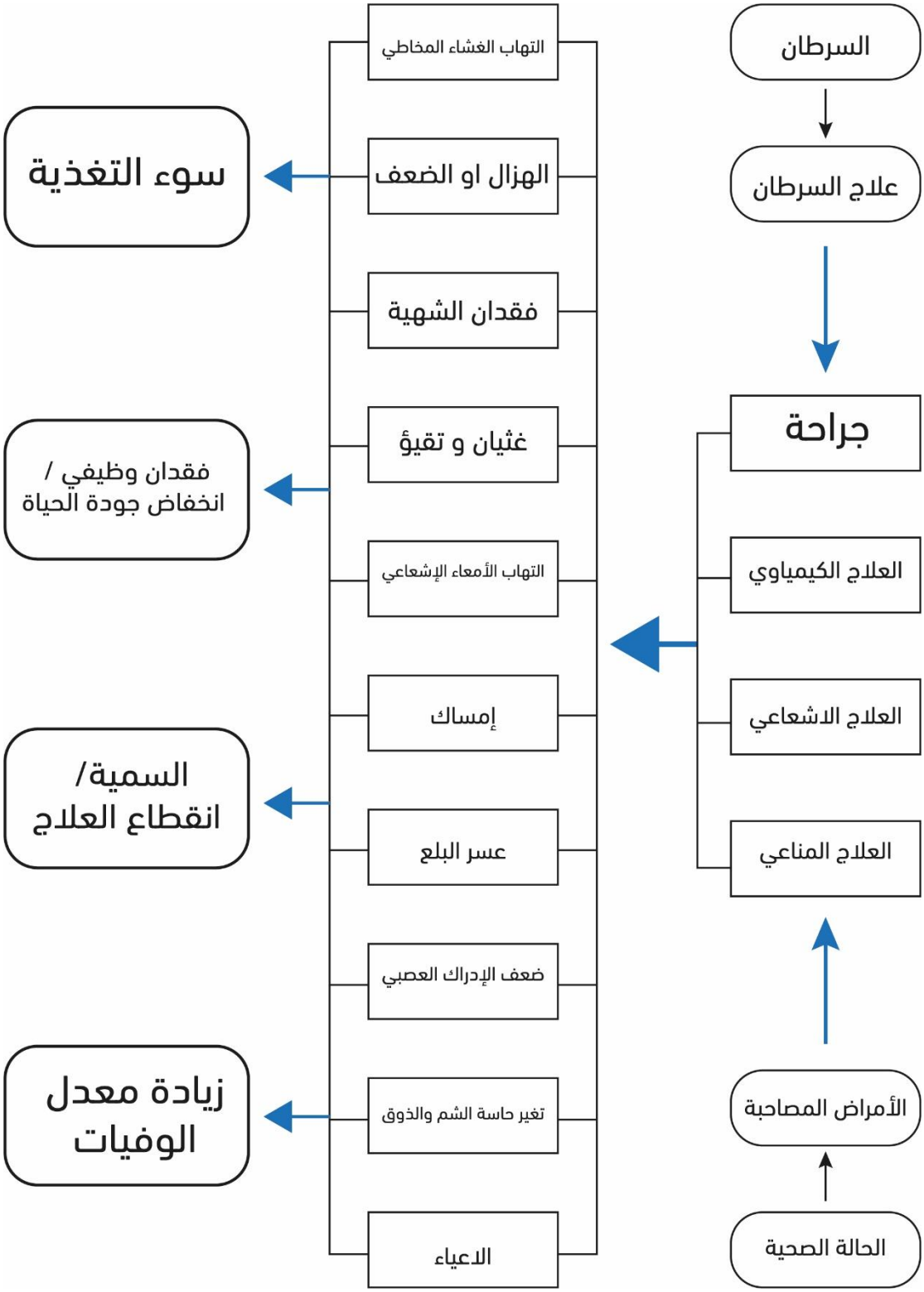
إن سوء التغذية والهبوط السريع في الوزن أثناء علاج الامراض السرطانية يمكن أن يتسبب في مضاعفات سلبية يمكن أن تعطل حسن سير البروتوكول العلاجي. من هذه المضاعفات نذكر:

إضعاف قدرة الجسم على تحمل العلاجات الموجهة لمرض السرطان.

ضعف المناعة وما يمكن ان يترتب عليه من إمكانية الإصابة بأمراض جرثومية.

ضعف عام وشعور بالتعب الملازم للمريض والذي بدوره ينعكس سلبا على نفسيته (حزن ،قلق، عدم الثقة في النفس...).

لذلك نعتبر تغطية الحاجيات الغذائية للجسم في أثناء علاج مرض السرطان أولوية قصوى


السرطان
علاج السرطان
جراحة
العلاج الكيمياوي
العلاج الاشعاعي
العلاج المناعي
الأمراض المصاحبة
الحالة الصحية
التهاب الغشاء المخاطي
الهزال او الضعف
فقدان الشهية
غثيان و تقيؤ
التهاب الأمعاء الإشعاعي
إمساك
عسر البلع
ضعف الإدراك العصبي
تغير حاسة الشم والذوق
الاعياء
سوء التغذية
فقدان وظيفي / انخفاض جودة الحياة
السمية/ انقطاع العلاج
زيادة معدل الوفيات

اشرب كمية كافية من السوائل من 1.5 إلى 2 لتر يوميا وذلك في شكل ماء او قهوة او شاي او شراب بنكهة (الورد، اللوز...).

المواد السكرية ليست ممنوعة فهي مصدر مهم للطاقة لكن تستهلك بصفة معقولة يوميا.

المواد الدهنية مهمة فهي أيضا مصدر مهم للطاقة كزيت الزيتون والزبدة. ننصح باستهلاكها بصفة معتدلة.

الحليب ومشتقاته (جبنة، زبادي، يا غورت، لبن...) جيد وسهل الهضم ويمكن تناوله في الثلاث وجبات الأساسية فهو مصدر مهم للكالسيوم والبروتينات. لا تتناول إلا الحليب المبستر أو المغلي (أو مشتقاته) لتجنب كل مسببات الأمراض الممكنة.

تناول يوميا وجبة تحتوي على لحم أبيض أو لحم أحمر أو سمك أو بيض فإنها أغذية تحتوي على بروتينات لازمة للجسم.

الحبوب والبقول والخضر والغلال مصادر مهمة للسعرات الحرارية والفيتامينات ويمكن تناولها في الثلاث وجبات أساسية وحتى أكثر في أثناء اليوم (وجبات صباحية ومسائية).

توجيهات التغذية العامة

المكملات الغذائية

.تشمل المكملات الغذائية الفيتامينات والأملاح المعدنية والمكملات العشبية

ويمكنك الحصول على العناصر الغذائية المطلوبة عبر اتباع نظام غذائي متوازن. غير أن تناول جرعة منخفضة من المكملات الغذائية للفيتامينات المتعددة والأملاح المعدنية قد يكون عاملاً مساعدًا إذا كنت تواجه مشكلات في اتباع نظام غذائي متوازن. المُكمل منخفض الجرعة هو ذلك الذي لا يتضمن أكثر من 100% من الحد اليومي .المسموح به لأي فيتامينات أو أملاح معدنية

غير أنه ليست هناك بحوث كافية تتيح معرفة أن تناول كميات كبيرة من مضادات الأكسدة أو الأعشاب أو الفيتامينات والأملاح المعدنية الإضافية يساعد في علاج السرطان أو الشفاء منه. وحسب علاج السرطان المحدد الذي تتلقاه، فإن تناول كم كبير للغاية من المكملات الغذائية قد يسبب لك الضرر أو يُغيِّر

سلامة الغذاء

أثناء تلقي علاج السرطان، يصعب على الجسد مكافحة العدوى. ويكون الأمر الأكثر أهمية هو التأكد من سلامة الأغذية التي تتناولها. حيث سيقلل هذا مخاطر إصابتك بالأمراض المنقولة بالغذاء وأنواع العدوى الأخرى.

البقاء رطبًا

من المهم للغاية المحافظة على ترطيب الجسد (تناول كميات كافية من السوائل) أثناء علاج السرطان. يمكنك ترطيب جسدك بتناول سوائل أخرى غير الماء. ويضم الجدول التالي بعض الأمثلة.

نوع السائل	الامثلة
الحساء	مرقة لحم البقر حساء السمك مرق
المشروبات	ماء الماء المكربن (الفوَّار) عصائر الفواكه والخضروات نكتار الفواكه (المشروبات الرياضية مثل الشاي الحليب أو مخفوق الحليب مشروبات المكملات الغذائية
الحلويات	(Jell-O® الجيلاتين (مثل (Popsicles® المصاصات المثلجة (مثل الجيلاتي، والآيس كريم، والزبادي المثلج، والمشروبات الغازية

الحصول على السعرات الحرارية والبروتين

نصائح لتناول الطعام والمشروبات الكافية

أثناء العلاج، قد تمر عليك أيام جيدة وأخرى صعبة فيما يتعلق بالغذاء. وقد تبدو الوجبات الكبيرة غير جذابة. ويمكن أن يحدث ذلك إذا كنت تفتقر إلى الشهية (ترغب في تناول قدر أقل من الطعام) أو الشبع المبكر (بعد بدء تناول الطعام بمدة قصيرة). يمكن أن تساعدك المقترحات التالية في تحقيق أقصى استفادة ممكنة من الوجبات.

1. تناول وجبات صغيرة بعدد أكبر. على سبيل المثال، تناول 6 إلى 8 وجبات في اليوم بدلاً من 3 وجبات رئيسية
2. تناول الطعام كل بضع ساعات. لا تنتظر حتى تشعر بالجوع.
3. احصل على حصص أقل من الطعام في صحون السلطة بدلاً من صحون تناول العشاء.
4. تناول الشوكولاتة الساخنة وعصائر الفاكهة والنكتار الغنية بالسعرات الحرارية.
5. تجنب المشروبات منخفضة السعرات الحرارية (مثل الماء والقهوة والشاي ومشروبات الحمية الغذائية). اصنع مشروبات الحليب المكثف والحليب المخلوط .
6. اجعل وجباتك الخفيفة المفضلة متوفرة في المنزل وأثناء التنقل وفي العمل.
7. تناول الأطعمة المفضلة لك في أي وقت من اليوم. على سبيل المثال، يمكنك تناول أطعمة الإفطار (مثل الفطائر أو البيض المخلوط المقلي) في الغداء أو العشاء.
8. قم بتضمين الأغذية ذات الألوان والقوامات المختلفة في وجباتك لجعلها أكثر شهية.
9. اجعل تناول الطعام تجربة جيدة عبر تناول الوجبات في محيط محبب ويبعث على الاسترخاء مع أفراد العائلة والأصدقاء.
10. اصنع الأطعمة ذات الروائح الزكية (مثل صُنع الخبز أو قلي اللحم المقدد).

نصائح لإضافة كمية أكبر من البروتين إلى نظامك الغذائي

1. تناول الأغذية الغنية بالبروتين (مثل الدجاج والسمك ولحم البقر والغنم والبيض والدجاج والجبن والحبوب والمكسرات أو زبدة المكسرات وأغذية الصويا).
2. تناول الحليب المزدوج واستخدمه في إعداد الوصفات التي تتطلب الحليب أو الماء (مثل البودينغ الفوري، والكاكاو، والبيض المخلوط المقلي، وخلطات الكيك).
3. استخدم الحليب المزدوج أو المكملات الغذائية الجاهزة للشرب (مثل (®Ensure مع الحبوب الساخنة أو الباردة.

4. أضف الجبن واللحوم المطهية المقطعة إلى البيض المخلوط المقلي أو كعكات البيض بالحليب.

5. أضف مسحوق البروتين عديم النكهة إلى أنواع الحساء الكريمية والبطاطس المهروسة والأطعمة المخلوطه والطواجن.

6. تناول وجبات خفيفة مكونة من الجبن أو زبدة المكسرات (مثل زبدة الفول السوداني والكاجو واللوز) مع المقرمشات.

7. افرد زبدة المكسرات على التفاح أو الموز أو الكرفس.

8. جرب تناول شرائح التفاح مع أصابع الجبن وضع بعض العسل عليها.

9. امزج زبدة المكسرات مع مشروباتك المخلوطه أو عصائر الفاكهة المثلجة.

10. تناول وجبات خفيفة مكونة من المكسرات أو بذور دوار الشمس أو القرع.

11. أضف المكسرات والبذور إلى الخبز وفطائر المافن والبان كيك والكوكيز والوافل.

12. جرب الحمص مع خبز البيتا. افرد الحمص على الشطائر أو أضف ملعقة كبيرة منه إلى السلطة.

13. أضف اللحوم المطهية إلى الحساء والطواجن والسلطات.

14. أضف جنين القمح والمكسرات المطحونة وبذور الشيا وبذور الكتان المطحونة إلى الحبوب والطواجن والزبادي.

15. اختر أنواع الزبادي اليوناني عوضًا عن الأنواع العادية.

16. تناول الحلويات المصنوعة بالبيض (مثل الكعك الإسفنجي والبودينغ والكاسترد والتشيز كيك).

17. أضف المزيد من البيض أو زلال البيض إلى الكاسترد والبودينغ وكعكات البيض بالحليب وعجين الفطير والتوست الفرنسي والبيض المخلوط والبيض المخلوط المقلي.

18. أضف الجبن المبشور إلى الصلصات والخضروات والحساء. ويمكنك أيضًا إضافته إلى البطاطس المخبوزة أو المهروسة والطواجن والسلطات.

19. أضف الجبن القريش أو الريكوتا إلى الطواجن أو أطباق المعكرونة أو البيض.

20. ضع الجبن المنصهر على البرجر وقطع الخبز الصغيرة.

21. أضف البازلاء والفاصوليا الحمراء والتوفو والبيض المسلوق والمكسرات والبذور واللحوم أو الأسماك المطهية إلى السلطة.

22. استخدم مرق العظام المبستر مع الحساء .

صائح لإضافة المزيد من السعرات الحرارية إلى نظامك الغذائي

1. يمكن أن تساعدك المقترحات التالية في تناول المزيد من السعرات الحرارية. وهي قد تبدو مغايرةً لما تعرفه بالفعل عن تناول الطعام الصحي. ولكن أثناء العلاج وخلال فترة التعافي، يكون الأمر الأكثر أهمية هو الحصول على قدر كافٍ من السعرات الحرارية والبروتين.

2. تجنب الأطعمة التي توجد على عبواتها عبارة "منخفضة الدهون" أو "منزوعة الدسم" أو "مناسبة للحمية الغذائية". على سبيل المثال، استخدم الحليب كامل الدسم وليس خالي الدسم.

3. تناول وجبات خفيفة مكونة من الفواكه المجففة أو المكسرات أو البذور المجففة. أضفها إلى الحبوب الساخنة أو الآيس كريم أو السلطات.

4. تناول نكتار الفواكه أو الفواكه المخلوطه.

5. أضف الزبد أو السمن أو الزيوت إلى البطاطس والأرز والمعكرونة. وأضفها أيضًا إلى الخضروات المطهية والشطائر والتوست والحبوب الساخنة.

6. أضف الجبن الكريمي أو زبدة المكسرات إلى التوست أو الخبز أو ضعها على الخضروات.

7. ضع الجبن الكريمي والمربى وزبدة الفول السوداني على المقرمشات.

8. أضف الجيلي أو عسل النحل إلى الخبز والمقرمشات.

9. اخلط المربى بقطع الفواكه وضعها فوق الآيس كريم أو الكيك.

10. استخدم التوابل عالية السعرات الحرارية على السلطات والبطاطس المخبوزة والخضروات (مثل الفول الأخضر أو الهليون).

11. أضف الكريمة الحامضة أو حليب جوز الهند أو الكريمة الثقيلة إلى البطاطس المهروسة والكيك ووصفات الكوكيز. ويمكنك إضافتها أيضًا إلى عجين الفطير والصلصات والمرق والحساء والطواجن.

12. ضع الجبن أو الكريمة الحامضة فوق البطاطس المخبوزة.

13. ضع الكريمة المخلوطه فوق الكيك والوافل والتوست الفرنسي والفواكه وأنواع البودينغ والشوكولاتة الساخنة.

14. اصنع وجبات الخضروات أو المعكرونة باستخدام صلصات الكريمة أو انثر زيت الزيتون فوق هذه الأطعمة قبل تناولها.

15. استخدم المايونيز والصلصات الكريمية وصلصة الثوم مع السلطات والشطائر وغموس الخضروات.

16. ضع الحليب المكثف المُحلى على الآيس كريم أو الكيك غير المتجمد. تناول الحليب المُكثف مع زبدة الفول السوداني لإضافة المزيد من السعرات الحرارية والنكهة.

17. أضف الخبز المُحمص إلى السلطات.

18. استخدم الحشو كطبق جانبي مع وجباتك.

19. تناول المشروبات المخلوطه المصنوعة في المنزل. يمكنك أيضًا تناول المشروبات عالية السعرات الحرارية والبروتين (مثل Carnation® Breakfast Essentials أو Ensure®).

20. أضف الأفوكادو إلى العصائر والحساء والسلطات والبيض المخلوط المقلي وافرده على التوست.

21. أضف المايونيز أو الكريمة الحامضة إلى السلطات (مثل سلطة التونة أو البيض) أو افردها على الشطائر

أكاديمية التغذية وعلم النظم الغذائية
www.eatright.org/public
تعتبر أكاديمية التغذية وعلم النظم الغذائية منظمة متخصصة تضم خبراء تغذية مسجلين. ويضم الموقع الإلكتروني معلومات حول أحدث توجيهات وأبحاث التغذية ويمكنه مساعدتك في العثور على خبير تغذية في منطقتك. تنشر الأكاديمية أيضًا *الدليل الكامل للطعام والتغذية*، وهو يضم أكثر من 600 صفحة تتضمن معلومات حول الطعام والتغذية والصحة.

المعهد الأمريكي لأبحاث السرطان
www.aicr.org
800-843-8114
يقدم معلومات حول الأنظمة الغذائية والأبحاث والمعلومات التثقيفية المتعلقة بالوقاية من السرطان، إلى جانب وصفات الطعام.

الطهي للارتقاء بجودة حياتك
www.cookforyourlife.org
العديد من أفكار الوصفات لمرضى السرطان يمكن تصفية الوصفات حسب نوع النظام الغذائي أو الآثار الجانبية للعلاج.

مركز إدارة الأغذية والأدوية لسلامة الأغذية والتغذية التطبيقية

المحاضرة الرابعه

عنوان المحاضرة : العلاج الكيماوي والتأثيرات الجانبية علئ التغذية

مكان المحاضرة:

وقت المحاضرة: (45 دقيقة)

الوسائل التعليمية:

1 . محاضرة على ورق

2 . عرض شرائح توضيحية

3 . بوسترات

4 . مناقشة جماعية

محتويات المحاضرة

- تعريف العلاج الكيمياوي
- أنواع العلاج الكيمياوي
- الأعراض الجانيبة للعلاج الكيمياوي

- فقر الدم
- الدور التمريضي للشعور بالتعب والإرهاق
- الغثيان والتقؤ والإسهال (نقص حجم السوائل بالجسم) والدور التمريضي
- تقرحات الفم والدور التمريضي

- **تعريف العلاج الكيمياوي**

- العلاج الكيمياوي هو العلاجِ الذي يعملُ على إيقافِ نموّ الخلايا أو إبطائها، ولكن تأثيره لا يقتصرُ على الخلايا السرطانيّة، فهو لا يميّز بين الخلايا السليمة والخلايا الخبيثة، وبالتالي فإنّه يلحقُ أضراراً بأنسجة الجسم، خاصّة تلك التي تنمو وتنقسمُ بسرعة مثل خلايا النِقي، وجهاز الهضم بصيلات الشعر ، ممّا يؤدّي إلى ظهورِ أعراض جانبيّة غير مرغوب بها عند الخضوع للعلاج الكيماوي .

- **أنواع العلاجات الكيمياوية**

1. المواد المُألكلة (Alkylating agents):بما ان الخلية السرطانية تتطور أسرع بكثير من الخلية الاعتيادية فنجد أن حامض DNA لها يكون حساس لأي أضرار مثل جعله قاعدياً لذلك تستخدم هذه الأدوية لعلاج مجموعه من السرطانات ولكنها بنفس الوقت

تكون سامه للخلايا السليمه (Cytotoxic) هي أكثر فعالية عندما تكون الخلية السرطانية في طور استراحتها ولا تنقسم بفعالية مثال Melphalan cyclophosphamide ,Lomuctine.

2. **مضادات حيوية مضادة للورم (Antitumor antibiotics):** تُشتق من الفطريات وتعمل في مراحل مختلفة من دورة حياة الخلية السرطانية؛وتعمل على إحداث ضرر في (DNA) داخل الخليه السرطانية لمنعها من النمو والتكاثرمثلاً Doxorubicin ,Daunorubicin
3. **مواد ضد الأيض (Antimetabolites):** تحاكي مكونات الخلايا السرطانية وتعمل في مراحل محددة من دورة حياة الخلية السرطانية لتعطيل قدرتها على الانقسام.
4. **مثبطات توبوايزوميريز (Topoisomerase):** تعمل على إضعاف بنية الخلية السرطانية
5. **النباتات القلوية (Plant alkaloids):** تعمل قلويات النبات على منع انقسام الخلايا السرطانية، كما يوحي الإسم هذه الفئة من أدوية العلاج الكيماوي مستمدة من النباتات.
6. (Tanaka, Matsushima, Mizumoto, & Takashima, 2009).

الأعراض الجانبية للعلاج الكيمياوي

1. نقص عدد كريات الدم البيضاء (Neutropenia) وزيادة خطر الإصابة بالعدوى
2. نقص عدد كريات الدم الحمراء(Anemia)
3. نقص عدد الصفيحات الدموية(Thrombocytopenia)
4. تقرحات أغشية الفم (Mucositis)
5. اسهال (Diarrhea)
6. غثيان وقيى (Nausea and vomiting)
7. الم (Pain)
8. تساقط الشعر(Hair Loss)
9. التعب والارهاق (Fatigue)

الأعراض الجانبية للعلاج الكيمياوي وعلاقتها بالتغذية.

- **فقر الدم (Anemia)** هي حالة تحدث بسبب انخفاض تركيز الهيموغلوبين عن المستوى الطبيعي (الاناث البالغات غير الحوامل أقل من 11غم/ديسيلتر والذكور البالغين أقل من 13غم/ديسيلتر). وبسبب الهبوط في مستوى الهيموغلوبين، تعاني أجهزة الجسم من عدم الحصول على ما يكفي من الأوكسجين وبالتالي يشكو المرضى من عوارض الإرهاق والصداع وعدم التركيز والخمول وغيرها.

أسباب فقر الدم

في مرض سرطان الدم، يكون نخاع العظم خلايا سرطانية غير طبيعية قد تحورت من الخلايا الطبيعية المسؤولة عن إنتاج الدم، فتقوم الخلايا االطبيعية بالانقسام وإنتاج خلايا دم طبيعية، بينما في نفس الوقت، الخلايا السرطانية تنقسم بشكل أسرع وتنتج خلايا سرطانية تشبه خلايا الدم ولكنها غير قادرة على القيام بوظيفتها. ومع الوقت، تحتل الخلايا السرطانية المساحة الأكبر من نخاع العظام، وينتج عن ذلك أن يكون عدد خلايا الدم الحمراء والبيضاء والصفائح الدموية في مجرى الدم أقل من الطبيعي، كما أن الخلايا السرطانية تتكسر بسهولة فيصاب المريض بنقص حاد في خلايا الدم على مدار فترة قصيرة.

أعراض وعلامات الإصابة بفقر الدّم ما يأتي:

(Jerr et al., 2011; Light, 2018)

- الشعور بالضّعف (Weakness)، والتّعب العام (Fatigue).
- الشّحوب او اصفرار الوجه.
- الشّعور بخفقان القلب (Palpitation)، وعدم انتظام نَبضاته.
- الشّعور بضيق في التّنفس. تساقط الشّعر (Hair loss).
- الشّعور بالإعياء (Malaise).
- لشّعور بالدّوار (Dizziness)، أو بخفّة الرأس (Lightheadedness).
- الصّداع (Headache).
- الشّعور بألم في الصّدر.

- برودة اليدين والقدم.

من أهم وأكثر الأعراض لفقر الدم هو التعب العام (fatigue)

الإجراءات التمريضية عند الشعور بالتعب والارهاق:

1. أخذ قسط من الراحة عند الشعور بالارهاق والتعب
2. التأكد من حصول المريض على عدد ساعات نوم كافية لاستعادة نشاطه
3. توفير نمط متوازن من ساعات النوم .
4. تنضيم جدول الفعاليات اليومية لتجنب أستهلاء الطاقة الجسمية.
5. تشجيع المريض على طلب المساعدة من الآخرين على القيام بالأعمال اليومية كالتنظيف والعناية بالأطفال.
6. تناول البروتينات والسعرات الحرارية.
7. إعطاء مكونات الدم حسب إرشادات الطبيب .
8. تقييم كمية السوائل ومعادن الجسم.

كيف يتم تشخيص فقر الدم عن طريق صورة الدم الكاملة (CBC . Complete Blood Count) حيث يظهر النقص في كريات الدم الحمراء عن المعدل الطبيعي، لذلك يقوم الطبيب بعمل تحليل صوره الدم الكاملة للمرض وإعطاء الدم.

✓ **الغثيان والتقؤ والإسهال**

(Diarrhea)& (Nausea and vomiting)

والذي يسبب نقص في حجم السوائل الجسم (Fluid volume deficit)

الغثيان والقيء من أهم أعراض العلاج الكيمياوي يعتمد على نوعية العلاج وقابلية المريض حيث يبدأ الغثيان والقيء إما أثناء إعطاء العلاج أو بعد إعطاءه بساعات قليلة أو بأيام قليلة.

الإجراءات التمريضية في حالة نقص في حجم سوائل الجسم:

1. مراقبة السوائل الماخوذه والمطروحه كل 24 ساعة.
2. مراقبة الوزن يومياً.
3. مراقبة العلامات الحيويه كل 6 ساعات.
4. فحص وتقييم مطاطية الجلد والأغشية المخاطية يومياً.
5. إعطاء أدوية مضاده للتقيؤ حسب إرشادات الطبيب مثل (Ondisteron)
6. مساعدة المريض على ممارسة تقانات التنفس العميق والبطيء.
7. يمكن وضع الموسيقى والتلفاز ليساعد المريض على الإسترخاء ونسيان الشعور بالغثيان.

8. ننصح المريض أن لايأكل الطعام المقلي وذي الرائحة القوية.
9. شرب الكثير من السوائل على فترات متقطعة.
10. تناول الطعام وهو بارد أو بدرجة حرارة الغرفة للتقليل من حدّة رائحته وطعمه. تفادي أكل الأطعمة الدسمة المقلية أو الحارة أو الحلوة جداً.
11. حاول أن ترتاح بهدوء في كرسي على الأقل لساعة بعد كل وجبة. لاتستلقِ على الأقل لساعتين بعد الأكل.
12. قم بإلهاء نفسك بالاستماع للموسيقى الهادئة أو برنامج تلفزيوني مفضل أو قم بزيارة أحد الاقارب أوالاصدقاء.
13. ارتاح و تمهل، تنفس بعمق أن كنت تشعر بالغثيان.
14. تناول الأطعمة الغنية بالبوتاسيوم مثل الموز والبطاطا
15. الإكثار من شرب السوائل لمنع الجفاف أي شرب من 3-4 لير يومياً
16. تناول الأطعمه قليلة الألياف مثل الرز الأبيض وتجنب الأطعمة الغنية بالألياف مثل الخضراوات

تقرحات الفم (Mucositis):

القرحة هي فقدان استمرارية الجلد أو الغشاء المخاطي مع فقدان الأنسجة السطحية وتفكك ونخر الأنسجة الظهارية. ويكون الدور التمريضي عند تقرح الفم:

1. تقييم حالة تجويف الفم بشكلٍ يومي.
2. إرشاد المريض على تسجيل أية حالة حرقة الفم أو الم وإحمرار بعض الفم أو الشفاه.
3. نشجع المريض ونساعده على تنضيف الفم .
4. إستخدام فرشاة أسنان ناعمة بعد تناول كل وجبة طعام.
5. إستخدام محلول ملحي لشطف الفم كل ساعتين أثناء النهار وكل 6 ساعات أثناء الليل.
6. إزالة طقم الأسنان أثناء تناول الطعام.
7. تجنب الأطعمة الحارة والصلبة.
8. إستخدام مرطب الشفاة.

المحاضرة الثالثه

عنوان المحاضرة : المكملات الغذائية

مكان المحاضرة:

وقت المحاضرة: (45 دقيقة)

الوسائل التعليمية:

1 . محاضرة على ورق

2 . عرض شرائح توضيحية

3 . بوسترات

4 . مناقشة جماعية

المكملات الغذائية:

إذا لم يكن بوسعك صُنع العصائرالمخلوطةبنفسك، فهناك العديد من المكملات الغذائية التي يمكنك شراؤها. بعضها مشروبات عالية السعرات الحرارية وجاهزة للشرب تحتوي على الفيتامينات والأملاح المعدنية المضافة. وهناك أيضًا المساحيق التي يمكنك خلطها بالأطعمة أو المشروبات الأخرى. وأغلبها يكون خاليًا من اللاكتوز أيضًا، مما يعني أن بوسعك تناولها حتى وإن لم تكن تتحمل اللاكتوز (لديك مشكلات في هضم منتجات الحليب).

المشروبات عديمة النكهة

تعتبر هذه المشروبات مفيدة للأشخاص محبي المذاق متوسط التحلية. ويمكن استخدامها كأساس لمشروبات الحليب المخلوطه ذات التحلية المتوسطة. هذه المشروبات هي:

- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Osmolite® 1 Cal	ابوت	لكل حصة تبلغ 8 أونصات: • 250سعر حراري • 10.5جرام بروتين
Isosource® HN	نستله	لكل حصة تبلغ 8 أونصات: • 300 سعر حراري • 13.5 جرام بروتين
Glytrol® unflavored	نستله	لكل حصة تبلغ 8 أونصات: • 250 سعر حراري • 11.3 جرام بروتين

المشروبات المنكهة المحلاة

تتوفر هذه المشروبات بنكهة الفانيليا والشوكولاتة والفراولة وغيرها، حسب العلامة التجارية. هذه المشروبات هي:

- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Ensure Original	ابوت	لكل حصة تبلغ 8 أونصات: • 255سعر حراري • 9 جرام بروتين
Boost® Original	نستله	لكل حصة تبلغ 8 أونصات: • 240 سعر حراري • 10 جرام بروتين
Ensure Plus	ابوت	لكل حصة تبلغ 8 أونصات: • 350 سعر حراري

		• 13 جرام بروتين
Boost Plus	نستله	لكل حصة تبلغ 8 أونصات: • 360 سعر حراري • 14 جرام بروتين
Boost Very High Calorie	نستله	لكل حصة تبلغ 8 أونصات: • 530 سعر حراري • 22 جرام بروتين
Ensure High Protein	ابوت	لكل حصة تبلغ 8 أونصات: • 160 سعر حراري • 16 جرام بروتين
Boost High Protein	نستله	لكل حصة تبلغ 8 أونصات: • 240 سعر حراري • 20 جرام بروتين
Ensure Compact	ابوت	لكل حصة تبلغ 4 أونصات: • 220 سعر حراري • 9 جرام بروتين
Boost Compact	نستله	لكل حصة تبلغ 4 أونصات: • 240 سعر حراري • 10 جرام بروتين

المشروبات ذات المحتوى المنخفض من السكر (للمصابين بالسكري)

تتوفر هذه المشروبات بنكهة الفانيليا والشوكولاتة وغيرها، حسب العلامة التجارية. هذه المشروبات هي:

- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Glucerna® Shake	ابوت	لكل حصة تبلغ 8 أونصات: • 180 سعر حراري • 10 جرام بروتين
Boost Glucose Control	نستله	لكل حصة تبلغ 8 أونصات: • 250 سعر حراري • 14 جرام بروتين

Glytrol Vanilla	نستله	لكل حصة تبلغ 8 أونصات: • 250 سعر حراري • 11.3 جرام بروتين

مشروبات الفواكه

تتوفر هذه المشروبات بنكهات الخوخ والبرتقال والتوت البري والشاي المثلج والتفاح والتوت الأزرق والرمان وغيرها، حسب العلامة التجارية. هذه المشروبات هي:

- الخالية من الدهون
- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Ensure Clear	ابوت	لكل حصة تبلغ 8 أونصات: • 250 سعر حراري • 9 جرام بروتين
Boost Breeze	نستله	لكل حصة تبلغ 8 أونصات: • 250 سعر حراري • 9 جرام بروتين
Resource® Diabetishield ملاحظة: هذا المشروب مخصص للمصابين بالسكري	نستله	لكل حصة تبلغ 8 أونصات: • 150 سعر حراري • 9 جرام بروتين • 30 جرام كربوهيدرات

مساحيق الحليب المنكهة المحلاة

يمكن خلط هذه المساحيق مع الحليب أو الماء، حسب العلامة التجارية. وهي متوفرة بنكهة الفانيليا والشوكولاتة والفراولة.

- تحتوي أغلب هذه المنتجات على اللاكتوز.
- تعتمد كمية الدهون لكل وجبة على العلامة التجارية وما إذا كان سيتم خلطها بالحليب كامل الدسم أو منخفض الدسم أو الماء.

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي

Carnation Breakfast Essentials™ ملاحظة: هذه المشروب متاح في عُلب مختلطة مسبقًا. تتوفر بعض النكهات بأنواع خالية من السكر.	كارنيشن	لكل حصة تبلغ 8 أونصات مع الحليب كامل الدسم: • 280 سعر حراري • 12 جرام بروتين
Carnation Breakfast Essentials الخالية من السكر (المحلاة صناعيًا)	كارنيشن	لكل حصة تبلغ 8 أونصات مع الحليب كامل الدسم: • 210 سعر حراري • 14 جرام بروتين
Scandishake® ملاحظة: هذا المشروب متاح بنوع خالٍ من اللاكتوز.	أبتاليس	لكل حصة تبلغ 8 أونصات مع الحليب كامل الدسم: • 600 سعر حراري • 12 جرام بروتين

المكملات عديمة النكهة

يمكن خلط هذه المكملات مع المشروبات أو الأطعمة الرطبة (مثل الفطائر والمافن والبودينغ) للحصول على المزيد من السعرات الحرارية أو البروتين أو كليهما.

وهذه المكملات الغذائية غير مخصصة للاستخدام كمصدر وحيد للتغذية. ناقش خبير التغذية السريري الخاص بك للحصول على المساعدة بشأن تضمين هذه المكملات في نظامك الغذائي.

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Scandical® (مسحوق)	أبتاليس	لكل ملعقة كبيرة من المسحوق: • 35 سعر حراري
Benecalorie® (سائل)	نستله	لكل 1.5 أونصة من السائل: • 330 سعر حراري • 7 جرامات بروتين
Unjury® Medical Quality Protein™ (مسحوق)	أنجوري	لكل مغرفة مسحوق 24 جرام: • 90 سعر حراري • 21 جرام بروتين

المكملات الغذائية للأفراد الذين هم بحاجة لتقييد استهلاكهم للبوتاسيوم أو الفسفور أو كليهما

تتوفر هذه المشروبات بنكهة الفانيليا وزبدة جوز البقان والتوت. وهي:

- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Nepro®	ابوت	لكل حصة تبلغ 8 أونصات: • 425 سعر حراري • 19 جرام بروتين
Suplena®	ابوت	لكل حصة تبلغ 8 أونصات: • 425 سعر حراري • 11 جرامات بروتين

Novasource® Renal	نستله	لكل حصة تبلغ 8 أونصات: • 475 سعر حراري • 21.6 جرام بروتين
Renalcal®	نستله	لكل حصة تبلغ 8.45 أونصات: • 500 سعر حراري • 8.5 جرام بروتين

أنواع البودينغ عالية السعرات الحرارية وعالية البروتين

تتوفر مكملات البودينغ هذه بنكهات الفانيليا والشوكولاتة وحلوى السكر والزبدة. وهي:

- الخالية من اللاكتوز
- الخالية من الغلوتين
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
بودينغ Boost Nutritional®	نستله	لكل حصة تبلغ 4 أونصات: • 250 سعر حراري • 9 جرام بروتين
بودينغ Ensure	ابوت	لكل حصة تبلغ 4 أونصات: • 250 سعر حراري • 9 جرامات بروتين

ألواح الوجبات الخفيفة لمصابي السكري

وهي:

- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Glucerna Snack Bar	ابوت	لكل لوح: • 150 الى 160 سعر حراري • 10 الى 11 جرام بروتين

عصائر التغذية المخلوطه العضوية

تتوفر هذه العصائر المخلوطة بنكهات حبوب الفانيليا الحلوة وفادج الشوكولاتة الكريمية وقهوة موكا المثلجة والفراولة والكريمة. وهي:

- الخالية من الغلوتين
- الخالية من الصويا
- الخالية من اللاكتوز بنسبة 99.3%
- الكوشر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Orgain™	نيوتريشيا	لكل حصة تبلغ 11 اونصاً: • 255 سعر حراري • 16 جرام بروتين
Kate Farms	Kate Farms	لكل حصة تبلغ 11 اونصاً: • 255 سعر حراري • 16 جرام بروتين

المشروبات المخلوطةعالية البروتين منخفضة السكر

تتوفر هذه المكملات الغذائية على هيئة مشروبات مخفوقة مُعدة مسبقًا بالعديد من النكهات أو على هيئة مسحوق. وهي:

- الخالية من الغلوتين
- الخالية من الصويا
- منخفضة السكر

المكمل الغذائي	الشركة المصنعة	المحتوى الغذائي
Premier Protein Shakes	بريمبير بروتين	لكل حصة تبلغ 11 اونصاً: • 160 سعر حراري • 30 جرام بروتين • 1 جرام سكر
Premier Protein Shakes	بريمبير بروتين	لكل حصة تبلغ 11 اونصاً: • 180 سعر حراري • 30 جرام بروتين • 3 جرام سكر

التحكم في الآثار الجانبية عن طريق التغذية

يتناول هذا القسم بالوصف بعض النصائح التي يمكنك اتباعها لمساعدتك بشأن:

فقدان الشهية

فقدان الشهية هو قلة الرغبة في تناول الطعام. وهو أحد الآثار الجانبية الشائعة للغاية لعلاج السرطان. قد تكون هناك أوقات معينة أثناء اليوم تشعر خلالها بشهية كبيرة وتتمكن من تناول كمية أكبر من الطعام. في هذه الحالة، اغتنم تلك الأوقات وحاول تناول أكبر كم ممكن من الطعام.
في بعض الأحيان، قد لا تشعر بأي جوع على الإطلاق. في هذه الحالة، جرب اتباع جدول للوجبات. على سبيل المثال، تناول الطعام كل ساعتين أو نحو ذلك بدلاً من الانتظار حتى تشعر بالجوع. ويمكنك أيضًا ضبط منبه لتذكيرك بتناول الطعام.

الإمساك

الإمساك هو مشكلة شائعة تسبب صعوبة في حركة الأمعاء. إذا كنت تعاني من الإمساك، فقد تكون حركة أمعائك:

- صعبة للغاية
- قليلة للغاية
- يصعب إخراج البراز
- تحدث أقل من المعتاد

هناك عدة عوامل تسبب الإمساك، ومنها نظامك الغذائي ونشاطك وأسلوب حياتك. كما أن بعض أدوية العلاج الكيماوي ومسكنات الألم تسبب الإمساك.

فيما يلي بعض الطرق للتحكم في الإمساك عن طريق النظام الغذائي:

تناول المزيد من الأطعمة الغنية بالألياف

الألياف مهمة لأن من شأنها زيادة الكتلة في البراز. ويساعد ذلك جسدك على تحريك البراز إلى خارج الجسم. أضف الألياف إلى نظامك الغذائي بمقدار صنف واحد في كل مرة. واحرص على تناول قدرٍ كافٍ من السوائل لمنع الغازات والانتفاخ. فيما يلي بعض الأمثلة على الأطعمة الغنية بالألياف:

- الفواكه
- الخضروات
- فطائر المافن المصنوعة من النخالة
- الحبوب الكاملة (مثل المعكرونة والخبز المصنوع من الحبوب الكاملة والأرز البني)
- المكسرات والبذور

تناول قدرًا كبيرًا من السوائل

حاول أن تتناول على الأقل 8 إلى 10 أكواب (8 أونصات) من السوائل يوميًا. اشرب الماء وعصائر الفواكه والخضروات والحليب وغير ذلك من السوائل. فسوف يساعد ذلك في تليين البراز.

تناول الطعام في أوقات ثابتة

حاول أن تتناول الوجبات في نفس الوقت كل يوم. وإذا أجريت أية تغييرات على نظامك الغذائي، فليكن ذلك ببطء.

أكثر من الحركة

تساعد حركة الجسم أيضًا في علاج الإمساك. مارس نشاطًا بدنيًا خفيفًا (مثل المشي أو صعود الدرج ببطء) للمساعدة على حركة الطعام خلال جهازك الهضمي. استشر طبيبك قبل بدء ممارسة أي نشاط بدني.

إسهال

يكون الإسهال مصحوبًا بحركة أمعاء متكررة ويكون البراز مائيًا. وهو يتسبب في مرور الطعام بسرعة عبر الأمعاء. عند حدوث ذلك، لا يمتص الجسم الماء والعناصر الغذائية بشكل جيد. قد يحدث الإسهال بسبب:

- العلاج الكيميائي
- العلاج الإشعاعي
- إجراء جراحة في المعدة أو الأمعاء
- الأدوية
- الصعوبة في هضم الحليب ومشتقاته
- تناول الكثير من الكحوليات السكرية (مثل السوربيتول أو المانيتول، والتي توجد في السكاكر الخالية من السكر)
- بعض أنواع الحساسية للطعام الأخرى

استشر طبيبك قبل استخدام المقترحات التالية للتحكم في الإسهال.

تناول قدرًا كبيرًا من السوائل

تناول على الأقل 8 إلى 10 أكواب (8 أونصات) من السوائل يوميًا. لأن ذلك يساعد في تعويض الماء والعناصر الغذائية التي تفقدها أثناء إصابتك بالإسهال. حاول شُرب:

- عصائر الفاكهة والنكتار المخلوطة بالماء
- Unflavored Pedialyte®
- ماء جوز الهند
- أقراص الإلكتروليت التي يمكنك إضافتها إلى الماء مثل (Nuun®)
- مساحيق الإلكتروليت التي يمكنك خلطها بالماء مثل (DripDrop®)
- الماء المضاف إليه الإلكتروليت مثل (Propel®)
- الصودا الخالية من الكافيين. اترك الصودا تستقر بدون تغطيتها لعدة دقائق قبل تناولها لتقليل الفوران.

اتبع التوجيهات الغذائية الواردة أدناه

تجنب تناول الأطعمة الساخنة أو الباردة للغاية، وذات المحتوى العالي من السكر والدهون والأطعمة الحريفة. حيث يصعب على جهازك الهضمي التعامل معها كما أنها تفاقم حالة الإسهال. اتبع توجيهات تناول الطعام والشراب الواردة أدناه إذا كنت مصابًا بالإسهال.

فواكه وخضراوات

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
• الفواكه والخضروات المطهية جيدًا والمقشرة والمهروسة أو المُعلبة • الموز • التفاح المُقشر أو المهروس • العصائر أو النكتارات المخلوطة بالماء • زبدة الفول السوداني الناعمة تحتوي أغلب هذه الأطعمة على البوتاسيوم والسوائل للمساعدة في تعويض ما فقده الجسم من جراء الإسهال. كما تحتوي على ألياف قابلة للذوبان قد تقلل حالة الإسهال.	• الفواكه والخضروات النيئة والمكسرات الكاملة والبذور (باستثناء تلك الواردة في عمود "أطعمة يمكن تجربتها") • الخضروات التي تؤدي إلى حدوث غازات (مثل البروكلي والقرنبيط والكرنب والفول والبصل)

النشويات والكربوهيدرات

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
• الخبز الأبيض المكرر والحبوب والأرز والمعكرونة والطحين • البطاطس المسلوقة أو المهروسة (بدون القشر) • المقرمشات والبسكويت المملح ومقرمشات غراهام تحتوي بعض هذه الأطعمة على الملح للمساعدة في تعويض ما فقده الجسم من جراء الإسهال.	• أنواع الخبز والمعكرونة والحبوب والأرز البني مع 3 جرامات أو أكثر من الألياف • منتجات الخبز مع المكسرات أو البذور • أنواع الخبز والمعجنات الغنية بالدهون (مثل الكرواسون والدونات) • البطاطس المقلية

اللحوم وبدائل اللحوم

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
• اللحوم الخالية من الدهون (مثل صدر الدجاج أو الديك الرومي) بدون الجلد • البيض المسلوق جيدًا • التوفو هذه هي أطعمة عديمة النكهة قليلة الدهون والألياف. ويمكن للجهاز الهضمي التعامل معها بسهولة أكبر.	• اللحوم الغنية بالدهون (مثل السلامي والبروني والسجق) • اللحوم المقلية والتوفو المقلي • اللحوم ذات الجلود يصعب على الجهاز الهضمي التعامل مع هذه الأطعمة. وقد تسبب الشعور بعدم الراحة وتفاقم حالة الإسهال.

منتجات الألبان

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
• الحليب أو الزبادي قليل الدسم إذا كانت لديك مشكلات في هضم الحليب أو منتجاته، فجرب الحليب الخالي من اللاكتوز (مثل حليب Lactaid®)أو الحليب الخالي من منتجات الألبان (مثل حليب الصويا أو اللوز أو الشوفان أو جوز الهند أو حليب الأرز) .	• الحليب كامل الدسم • الآيس كريم عالي المحتوى الدهني • الأجبان عالية المحتوى الدهني • الكريمة الحامضة

البهارات

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
• الملح (ما لم يتعين عليك تجنبه لأسباب أخرى) • أنواع المرق وتوابل السلطات الخالية من الدهون	• كميات كبيرة من السكر والتوابل • توابل السلطات والمرق الغنية • الأطعمة أو المشروبات المحتوية على الكافيين (مثل الشوكولاتة أو الشاي أو الصودا) يصعب على الجهاز الهضمي التعامل مع هذه الأطعمة. وقد تسبب الشعور بعدم الراحة وتفاقم حالة الإسهال.

جفاف الفم

قد يحدث جفاف الفم بسبب:

- العلاج الكيميائي
- العلاج الإشعاعي
- الأدوية
- إجراء جراحة في الرأس والرقبة
- العدوى
- مشكلات صحية أخرى

قد يتسبب جفاف الفم أيضًا في تسوس الأسنان. ويرجع ذلك لقلة إنتاج اللعاب الذي يوفر الحماية للأسنان ضد التسوس. تعتبر النظافة الصحية للفم (العناية الجيدة بالفهم) مهمة للغاية إذا كنت تعاني من جفاف الفم. تجنب أنواع غسول الفم الكحولية. بدلاً منها، اصنع غسول الفم الخاص بك عبر خلط ملعقة صغيرة واحدة من بيكربونات الصودا وملعقة واحدة من الملح في ربع جالون (4 أكواب) من الماء الدافئ. اغسل فمك بغسول الفم هذا كل ساعتين.

عندما يكون فمك جافًا، يصبح تناول الطعام صعبًا. وقد يصعب مضغ بعض أنواع الأطعمة وبلعها. وقد تصنع أنواع الطعام التي تتناولها فرقًا. اختر الأطعمة الرطبة ذات القوام الطري والتي يسهل بلعها. وتجنب الأطعمة الجافة أو الصلبة. تناول قدرًا كبيرًا من السوائل على مدى اليوم. وقد يُسهل تناول رشفات من السوائل أثناء تناول الوجبات مضغ الطعام وبلعه. اتبع توجيهات تناول الطعام والشراب الواردة أدناه إذا كنت تعاني من جفاف الفم.

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
الأطعمة الطرية والمهروسة، مثل: • الطواجن وأطباق البقوليات والمعكرونة والجبن والبيض المخلوطه • الدجاج والأسماك المطهية الطرية • اليخنة وأنواع الحساء الكريمية • الحبوب المطهية • أغذية الأطفال • إضافة الصلصات والمرق والعصائر ومرق اللحم الصافي والسمن والكريمة الحامضة إلى الطعام • الخبز والمقرمشات والمخبوزات الأخرى المغموسة في الحليب أو الشاي • الأناناس أو البابايا الطازج	الأطعمة الصلبة أو الجافة، مثل: • اللحوم الجافة بدون صلصة • الخبز والمقرمشات والبسكويت المملح والحبوب الجافة الخشنة • الفواكه والخضروات النيئة الصلبة
الأطعمة الباردة، مثل: • الحليب المخلوطه ومشروبات السموذي وأنواع الزبادي والجيلاتين والجبن القريش والمكملات الغذائية (انظر القسم "المكملات الغذائية") • الفواكه والخضروات المهروسة قد يساعد أيضًا تناول السكاكر الصلبة الخالية من السكر والعلكة. جرب نكهات الحمضيات أو القرفة أو النعناع.	

قُرح الفم أو الحلق

قد تحدث قرح الفم والحلق بسبب بعض العلاجات الكيميائية والإشعاعية على الرأس أو العنق. وقد تسبب قرح الفم أو الحلق صعوبة في تناول الطعام. ويمكن أن تصنع طريقة تناولك للطعام الفرق. فيما يلي بعض النصائح التي تساعد على تجنب الشعور بالألم في الفم:

- قم بطهي الأطعمة حتى تصبح طرية ولينة. استخدم الخلاط لهرس الطعام.
- اقطع الطعام إلى قطع صغيرة يسهل مضغها.
- اغسل فمك كثيرًا. جرب استخدام غسول فم مصنوع من ملعقة صغيرة واحدة من الملح وملعقة صغيرة من بيكربونات الصودا وربع جالون (4 أكواب) من الماء الدافئ فقد يكون مفيدًا. وإذا لم يفلح ذلك، فاطلب من الطبيب توصياته بشأنه أنواع غسول الفم الأخرى.

- استخدم شفاطة لتناول المشروبات. حيث يحول ذلك دوم ملامسة السوائل لفمك المتقرح.
- اغسل أسنانك ولسانك بالفرشاة إذا أخبرك الطبيب أو طبيب الأسنان بأنه لا بأس في ذلك.
- تناول المزيد من السوائل للمحافظة على فمك نظيفًا.

إذا كنت مصابًا بقرح الفم أو الحلق، فجرب تناول الأطعمة الأكثر ليونة أو عديمة النكهة أو الفاترة أو الباردة. وتجنب الأطعمة التي قد تؤدي إلى زيادة الألم، مثل الأطعمة الجافة والمتبلة والمملحة والحامضة أو الحمضية. اتبع توجيهات تناول الطعام والشراب الواردة أدناه إذا كنت تعاني من قرح الفم أو الحلق.

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
الأطعمة المهروسة والطرية عديمة النكهة، مثل: • الطواجن البسيطة والبطاطس المهروسة والمعكرونة والجبن، والبيض المخلوطه • الدجاج والسمك المطهي جيدًا أو المهروس • أنواع الحساء الكريمية • الحبوب المطهية • أغذية الأطفال (التابيوكا والنكهات البسيطة) • إضافة الزبدة والكريمة الحامضة والزيوت والصلصات الخفيفة (حسب القدرة على تحملها) إلى الأطعمة • الخبز والمقرمشات والمخبوزات الأخرى المغموسة في الحليب أو الشاي	الأطعمة الصلبة أو الجافة، مثل: • اللحوم الجافة • الخبز الجاف والمقرمشات والبسكويت المملح • الفواكه والخضروات النيئة الصلبة
الأطعمة الباردة، مثل: • الحليب المخلوطه ومشروبات السموذي وأنواع الزبادي والجيلاتين والكسترد والبودينغ والجبن القريش، والمكملات الغذائية مثل Ensure	الأطعمة الحريفة والمملحة والحمضية، مثل: • الأطعمة المصنوعة باستخدام كميات كبيرة من التوابل، مثل مسحوق الفلفل الحلو أو الحامي • الأطعمة الغنية بالملح أو المصنوعة باستخدام الخل • منتجات الفواكه الحمضية (مثل عصير البرتقال والليمون) • منتجات الطماطم (مثل صلصة المعكرونة وعصير الطماطم وحساء الطماطم)

تغيرات المذاق

قد يتأثر شعورك بالمذاق بفعل العلاج الكيميائي والعلاج الإشعاعي وبعض العلاجات الأخرى.

يتكون الشعور بالمذاق من 5 حواس رئيسية، وهي الأطعمة المملحة والحلوة والشهية والمرة والحامضة. وتختلف تغيرات المذاق من شخص لآخر. التغييرات الأكثر شيوعًا هي وجود مذاق مر ومعدني في فمك. وفي بعض الأحيان، قد لا يبدو مذاق الطعام مثل أي شيء. تزول هذه التغيرات غالبًا بعد انتهاء مدة العلاج.

من المهم للغاية المحافظة على نظافة الفم وصحته (العناية الجيدة بالفم) للمساعدة في التغلب على تغير المذاق. يمكنك فعل ذلك بغسل أسنانك ولسانك بالفرشاة (إذا أخبر الطبيب أو طبيب الأسنان أنه لا بأس بذلك) وتناول قدر أكبر من السوائل. وقد يوصيك فريق الرعاية الطبية أيضًا باستخدام غسول فم خالٍ من الكحول مثل(Biotene®) . ويمكنك أيضًا صنع غسول الفم الخاص بك عبر خلط ملعقة صغيرة واحدة من بيكربونات الصودا وملعقة واحدة من الملح في ربع جالون (4 أكواب) من الماء الدافئ. أكثر من استخدام غسول الفم (قبل وبعد تناول الطعام) على مدار اليوم.

إذا كان طعامك يبدو عديم المذاق:

- غيّر قوام الأطعمة التي تتناولها. على سبيل المثال، قد تفضل تناول البطاطس مهروسة وليست مخبوزة.
- غيّر درجة حرارة الطعام. فقد يبدو مذاق بعض الأطعمة أفضل إذا كانت باردة أو بدرجة حرارة الغرفة.
- اختر واصنع الأطعمة التي تكون جيدة من حيث المظهر والرائحة بالنسبة لك.
- استخدم المزيد من التوابل والمنكهات، طالما لم تكن تسبب لك الشعور بعدم الراحة. على سبيل المثال:
  - أضف الصلصات والبهارات (مثل صوص الصويا أو الكاتشب) إلى طعامك.
  - انقع اللحوم أو بدائل اللحوم في توابل السلطات أو عصائر الفاكهة أو غيرها من الصلصات الأخرى.
  - استخدم البصل أو الثوم لإعطاء نكهة محببة للخضروات أو اللحوم.
  - أضف الأعشاب (مثل الروزماري والريحان والزعتر والنعناع) إلى طعامك.
  - امزج الفواكه مع الحليب المخلوطه أو الزبادي. ويمكنك أيضًا تجربة الحليب المخلوطه بنكهة القهوة أو النعناع.

- جرب الأطعمة الحمضية واللاذعة. فهي قد تساعد في تحفيز حاسة التذوق لديك.
- جرب التبديل بين لقيمات الأطعمة ذات المذاق المختلف أثناء تناول وجبتك. على سبيل المثال، جرب:
  - الجبن القريش والأناناس.
  - الفواكه المعلبة والزبادي السادة.
  - الجبن المشوي وعصير الطماطم.

إذا شعرت بمذاق مُر أو معدني في فمك:

- اغسل فمك بالماء قبل الوجبات.
- إذا كانت اللحوم ذات طعم مُر، فجرب وضعها في الصلصات أو عصائر الفاكهة أو ضع عصير الليمون عليها. افعل ذلك فقط إن لم تكن مصابًا بقروح في الفم.
- قم بتضمين بدائل اللحوم (مثل منتجات الألبان والبقوليات) للحصول على البروتين.
- استخدم أدوات المائدة البلاستيكية.
- جرب تناول النعناع أو العلكة الخالية من السكر.
- تجنب بعض الأطعمة المُعلبة (مثل الصلصات والحساء). وبدلاً من ذلك اختر الأطعمة الموجودة في زجاجات أو عبوات زجاجية أو بلاستيكية

إذا كانت الأطعمة مُسكَّرة للغاية:

- أضف بعض الملح إلى الطعام.
- خفف المشروبات المُسكرة بالماء.
- إذا كان مذاق جميع الأطعمة والمشروبات مُسكرًا، فجرب تناول الأطعمة الحمضية (مثل تلك التي تحتوي على الليمون)

إذا كان مذاق الطعام أو رائحته مختلفة عما هو معتاد:

- تجنب الأطعمة ذات الروائح القوية. لأن لحم البقر والسمك لها أقوى رائحة، فجرب تناول الدواجن والبيض ومنتجات الألبان.
- عند الطهي، افتح أغطية القدور والأواني بعيدًا عنك بحيث تنتقل الرائحة بعيدًا عنك وليس باتجاهك.
- افتح النوافذ أثناء الطهي إذا كانت رائحة الطعام أثناء طهيه تسبب لك الإزعاج.
- اختر الأطعمة التي يمكن تناولها باردة أو بدرجة حرارة الغرفة. دع الطعام يبرد قبل تناوله. تكون رائحة الأطعمة الباردة أو التي لها درجة حرارة الغرفة أخف من الأطعمة الدافئة.
- جرب استخدام توابل مختلفة ومزج الأطعمة المختلفة ببعضها البعض، مثل:
  - إضافة الصلصات إلى الطعام.
  - تغيير درجة حرارة الطعام وقوامه.
- إذا لم يكن فمك متقرحًا، فجرب الأطعمة اللاذعة مثل أصابع الليمون أو الفواكه الحمضية) لتحفيز حاسة التذوق.

- اغسل فمك قبل وبعد تناول الطعام.
- تناول رشفات قليلة من السوائل أثناء تناول الوجبات لإزالة مذاق الطعام.

الشبع المبكر

يحدث الشبع المبكر عندما تشعر بالامتلاء أسرع من المعتاد عند تناول الطعام. على سبيل المثال، قد تشعر أنه ليس بوسعك تناول المزيد من الطعام فيما تكون قد تناولت فقط نصف كمية الطعام. قد يحدث الشبع المبكر من جراء الخضوع لجراحة في المعدة أو الإصابة بالإمساك أو تناول بعض الأدوية فضلاً عن أسباب أخرى.

إذا شعرت بالامتلاء أسرع مما ينبغي، فجرب:

- تناول وجبات صغيرة بعدد أكبر.
- تناول أغلب السوائل قبل أو بعد الوجبات. قد يمنحك الشرب أثناء الوجبات الشعور بالامتلاء بسرعة أكبر.
- أضف الأطعمة الغنية بالسعرات الحرارية والبروتين (على سبيل المثال، الحليب الجاف الخالي من الدسم، جنين القمح، زبدة المكسرات، الأفوكادو، الزيوت، الزبدة) إلى وجباتك.
- انخرط في نشاط بدني خفيف (مثل المشي) بعد تناول الطعام. حيث يساعد ذلك في حركة الطعام عبر جهازك الهضمي.

الغثيان والقيء

الغثيان هو الشعور باضطرابات في المعدة. وقد يحدث الغثيان بسبب تلقي العلاج الإشعاعي والعلاج الكيميائي والخضوع للجراحة. وقد يحدث أيضًا بسبب الألم وبعض الأدوية والعدوى.

إذا شعرت بالغثيان، فقد يكون مصحوبًا أيضًا بالقيء. إذا كنت تتقيأ، فابذل كل ما في وسعك لاتباع المقترحات الواردة في هذا القسم. احرص على المحافظة على ترطيب جسمك بتناول المشروبات الغنية بالإلكتروليت. اقرأ القسم "المحافظة على ترطيب الجسد" في بداية هذا المورد للحصول على الأمثلة.

فيما يلي بعض الاقتراحات للتحكم في الغثيان عن طريق التغذية. اطلب من طبيبك أو ممرضتك دواءً مضادًا للقيء (لمنع أو علاج الغثيان والقيء).

اطعمة يمكن تجربتها	اطعمة يجب تجنبها
الأطعمة النشوية قليلة الدهون وعديمة النكهة، مثل: • التوست الجاف، المقرمشات والخبز • كعكة طعام الملائكة وويفر الفانيليا • الشربات أو الآيس كريم قليل الدهون أو الزبادي المثلج • الجيلاتين • الفواكه المعلبة غير المحلاة	• الأطعمة عالية المحتوى الدهني أو كثيرة التوابل أو المُسكَّرة للغاية • اللحوم الدهنية • الأطعمة المقلية (مثل البيض والبطاطس المقلية) • أنواع الحساء مع الكريمة الثقيلة • الخضروات الكريمية • المعجنات والدونات والكوكيز عالية المحتوى الدهني والسكر • الأطعمة المصنوعة باستخدام الكثير من التوابل (مثل الفلفل الحلو أو الحار، والبصل والصلصة الحارة أو توابل السلطات)
الأطعمة الباردة، مثل: • البروتينات الباردة (مثل الدجاج منزوع الجلد، والأجبان والزبادي) • سلطات المعكرونة الخفيفة • المصاصات المثلجة • السوائل الصافية الباردة (مثل المكملات الغذائية (Ensure Clear) والعصائر المخففة بالماء)	قد تبقى الأطعمة عالية المحتوى الدهني في معدتك لمدة أطول وتكون أصعب في الهضم. تتسم العديد من هذه الأطعمة بروائحها أو نكهاتها القوية التي قد تسبب الغثيان أو تفاقم حالته.

نصائح عامة

- انتبه إلى كمية الطعام التي تتناولها. فتناول الكثير من الطعام قد يجهد المعدة.
- جرب تناول الأطعمة الجاهزة (مثل الوجبات الجاهزة أو وجبات العشاء المجمدة) لمنع حدوث الغثيان أثناء طهي أو إعداد الطعام. اطلب من آخرين الطهي لك إذا كنت بحاجة لذلك.
- إذا كانت رائحة الطعام تصيبك بالغثيان:
  - جرب الأطعمة الباردة (مثل الشطائر أو السلطات). فلا تكون رائحة هذه الأطعمة قوية مثل الأطعمة الساخنة.
  - اترك المكان عند طهي الأطعمة الساخنة إن كان بوسعك ذلك.
  - اطلب من شخص آخر وضع الطعم في الطبق بالنيابة عنك.
  - اترك طعامك يبرد لعدة دقائق قبل تناوله.
  - تجنب الأماكن التي تنتشر فيها الروائح القوية.
- تناول وجبات صغيرة بعدد أكبر. فقد يمنع ذلك شعورك بالامتلاء الشديد ويساعدك في استهلاك كمية أكبر من الطعام على مدار اليوم.
- تناول أغلب السوائل بين الوجبات. فسوف يمنع ذلك شعور بالشبع بسرعة كبيرة أو شعورك بالانتفاخ.

- تناول الطعام ببطء وامضغه جيدًا. تجنب أداء أي نشاط بعد الوجبات. فهذه الأشياء تساعد في عملية الهضم.
- تناول وجباتك في محيط محبب. على سبيل المثال:
  - اختر مكانًا يبعث على الاسترخاء في درجة حرارة مريحة.
  - تناول الطعام مع الأصدقاء أو أفراد العائلة. فقد يعوق ذلك شعورك بالغثيان.
  - ارتدِ ملابس فضفاضة حتى تشعر بالراحة.
- إذا كنت تعاني من الغثيان في الصباح، فضع التوست الجاف أو المقرمشات دومًا بالقرب من سريرك. وتناولها قبل النهوض من السرير.
- تجنب تناول أطعمتك المفضلة قبل أو بعد الخضوع للعلاج مباشرةً. لأنك إذا كنت تشعر بالغثيان أثناء العلاجات أو بعدها، فقد تكره هذه الأطعمة.

إذا كان الغثيان مشكلة ممتدة بالنسبة لك، فقد يكون من المفيد الاحتفاظ بمفكرة غذائية. المفكرة الغذائية هي سجل يضم الأطعمة التي تتناولها، ووقت تناولها، وظروف تناولها. سجل أي مواقف تشعر خلالها بالغثيان. ناقش ذلك مع الطبيب أو الممرض أو خبير التغذية السريري.

الإجهاد

الإجهاد هو الأثر الجانبي الأكثر شيوعًا لدى مرضى السرطان ومن يتلقون علاجات السرطان. وهو قد يحول دون أدائك أنشطتك اليومية المعتادة. كما قد يؤثر على جودة حياتك ويجعل من الصعب عليك تحمل العلاج.

قد يحدث الإجهاد نتيجة العديد من الأعراض الأخرى، مثل:

- ضعف الشهية
- الاكتئاب
- الغثيان والقيء
- الإسهال أو الإمساك

قد يساعد التحكم في هذه الأعراض أيضًا في التغلب على الإجهاد. إذا كنت تعاني من أيٍ من الأعراض السابقة، فأخبر مقدم الرعاية الصحية الخاص بك بذلك.

هناك طريقة أخرى للتحكم في الإجهاد وهو توفير الطاقة. ويمكنك القيام بذلك عن طريق:

- إعداد حصص أكبر من الطعام لنفسك خلال الأيام التي تشعر فيها بالطاقة والحيوية. تجميد حصص الوجبات الفردية لسهولة الحصول على وجبة مجمدة خلال الأيام التي لا تحب الطهي فيها.
- طلب المساعدة من الأصدقاء أو أفراد العائلة بشأن التسوق وإعداد الوجبات.
- شراء الأطعمة الجاهزة إذا كانت طاقتك منخفضة.
- الاحتفاظ بالمكونات والأدوات والأواني التي تستخدمها كثيرًا في متناول يدك.
- الجلوس بدلاً من الوقوف أثناء الطهي.

- تناول وجبات رئيسية أو خفيفة صغيرة ومتكررة وعالية السعرات الحرارية. إذا فعلت ذلك، فلن يحتاج جسدك إلى الكثير من الطاقة لهضم الطعام.

إذا كنت تعيش بمفردك وليس بوسعك التسوق أو إعداد الوجبات، فقد تكون مؤهلاً للانضمام لبرامج الغذاء (مثل God's Love We Deliver أو Meals on Wheels). وقد تفرض بعض هذه البرامج شروطًا معينة متعلقة بالسن أو الدخل. وبوسع الأخصائي الاجتماعي تزويدك بالمزيد من المعلومات.

بالنسبة لبعض الأشخاص، قد يساعد أداء نشاط بدني في رفع مستويات الطاقة لديك بشكل فعلي. ناقش طبيبك بشأن الأنشطة الخفيفة إلى المتوسطة (مثل المشي أو الاعتناء بالحديقة). أظهرت البحوث أن أداء قدر من النشاط البدني يسهل على الفرد أداء أنشطته اليومية الاعتيادية، ويعزز مستويات الطاقة بالجسم، كما يزيد الشهية ويُحسن الحالة المزاجية.

القوائم النموذجية

استخدم هذه القوائم النموذجية للتعرف على أفكار جديدة أو لإعداد وجباتك الخاصة عالية السعرات والحرارية والبروتين. تضم القوائم 6 وجبات رئيسية وخفيفة يمكن تناولها على مدار اليوم. فقد يسهل تناول الوجبات الرئيسية والخفيفة الأكثر عددًا والأقل حجمًا ويساعدك ذلك في الحصول على المزيد من السعرات الحرارية والبروتين المطلوب.

إذا وجدت صعوبة في إعداد وجباتك، فاطلب المساعدة من أفراد العائلة والأصدقاء. جرب إعداد الوجبات على دفعات في الأيام التي تشعر خلالها بالطاقة والحيوية وضعها في المُجمد لتناولها لاحقًا. ويمكنك أيضًا تناول الأطعمة الجاهزة مثل وجبات العشاء المجمدة والدجاج الكامل المطهي أو الوجبات التي يمكن شراؤها من المطاعم.

النقاط الرئيسية

- إذا كنت مريضًا بالسكري أو ارتفاع مستوى السكر في الدم، فاستخدم المنتجات غير المُحلاة أو المصنوعة ببدائل السكر. حدد كمية عصير الفاكهة التي تتناولها.
- ستجد أن كمية السائل في خطط الوجبات صغيرة حتى لا تشعر بالامتلاء سريعًا بعد بدء تناول الطعام. جرب تناول أغلب السوائل بين الوجبات. يحتاج أغلب البالغين إلى 8 إلى 10 أكواب (8 أونصات) من السوائل يوميًا. وهي تشمل العصائر والماء والحليب المخلوطه والحساء. كما تشمل أيضًا المواد الصلبة التي تتحول إلى سائل في درجة حرارة الغرفة (مثل الجليد الإيطالي).
- إذا كنت تعاني من عدم تحمل اللاكتوز:
  - تناول الحليب الخالي من اللاكتوز (مثل حليب Lactaid®)، أو حليب الأرز أو حليب اللوز أو حليب الصويا بدلاً من الحليب الحيواني. إذا كنت مصابة أو أُصبت سابقًا بسرطان الثدي، فاستشيري طبيبك أو خبير التغذية السريري الخاص بك بما إذا كان مسموحًا لكِ بتناول الأطعمة التي تحتوي على الصويا. جرب الأشكال المُحلاة من أنواع الحليب هذه للحصول على سعرات حرارية إضافية.
  - تناول أقراص أو قطرات اللاكتيد مع الأطعمة المصنوعة من الحليب الحيواني الأخرى، مثل الآيس كريم أو أنواع الجبن الطرية.
  - إذا كنت تعاني من عدم تحمل اللاكتوز بدرجة خفيفة إلى متوسطة، فقد تستطيع تناول الأطعمة التي تحتوي على كميات بسيطة من اللاكتوز (مثل أنواع الجُبن القديمة والصلبة والزبادي). حيث يستطيع أغلب الأشخاص تناول هذه الأطعمة دون أي شعور بعدم الراحة.
- إذا كنت نباتيًا، فتناول المزيد من المكسرات والبذور والزيوت لزيادة السعرات الحرارية. إذا كنت نباتيًا صِرفًا، فاحرص بشدة على تناول الأطعمة الغنية بفيتامين بـ 12 والكالسيوم والحديد والزنك. ناقش أخصائي التغذية السريري إذا كنت تتبع نظامًا غذائيًا نباتيًا أو نباتيًا صرفًا.
- تحتوي هذه القوائم النموذجية على أقل من 5 إلى 9 حصص يوميًا موصى بها من الفواكه والخضروات مجتمعةً. وهذا لأن الفواكه والخضروات تحتوي على قدر منخفض من السعرات الحرارية ومع ذلك تعطي الشعور بالامتلاء. نوصيك بالتركيز على الأطعمة التي تحتوي على قدر أعلى من السعرات الحرارية والبروتين لتجنب فقدان الوزن. وإذا وجدت أنك لا تحصل على الحصص بالحد الأدنى اليومي الموصى به، فناقش طبيبك بشأن ما إذا كان بإمكانك تناول مكملات الفيتامينيات المتعددة لتعويض أي عناصر غذائية غائبة.

- راجع قسم "الوصفات" للتعرف على وصفات للحليب المزدوج والمشروباتالمخلوطةالمدرجة في القوائم النموذجية.

القوائم النموذجية للنظام الغذائي العادي

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• بيضة واحدة أومليت مع أونصة واحدة من الجبن المبشور • قطعة كرواسون صغيرة مع الزبد والجيلي • 4أونصات من عصير البرتقال
وجبة خفيفة صباحية	• 2 ملعقة كبيرة من زبدة الفول السوداني وملعقة كبيرة واحدة من الجيلي على 4 قطع مقرمشات • 4 أونصات من الحليب المزدوج
وجبة الغداء	• نصف شطيرة من الديك الرومي المدخن والجبن السويسري على خبز الجوادر • 4 أونصات من الشوكولاتة الساخنة التي تم صنعها بالحليب المزدوج والمضافة إليها الكريمة المخلوطة
وجبة خفيفة في الظهيرة	• نصف كوب من خليط الفواكه المجففة والمكسرات • 4أونصات من عصير التوت البري
وجبة العشاء	• شريحة (بوصتان) من خبز التارت • نصف كوب بروكولي مع الكريمة أو صلصة الجبنة • 4 أونصات من نكتار الخوخ
وجبة مسائية	• نصف كوب من الآيس كريم بالفانيليا عالي المحتوى الدهني مع المكسرات المطحونة وشراب القيقب والكريمة المخلوطة

* يحتوي الآيس كريم عالي المحتوى الدهني على حوالي 100 سعر حراري إضافي لكل حصة طعام أكثر من الآيس كريم العادي. كما يحتوي أيضًا على حوالي 20 جرام لكل حصة تبلغ نصف كوب.

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• 2 فطيرة صغيرة مصنوعة بالحليب المزدوج أو النصف والنصف مع الزبدة وشراب السكر • 4 أونصات من عصير الأنانس
وجبة خفيفة صباحية	• 4 قطع بسكويت غراهام مع زبدة الفول السوداني • ربع كوب زبادي • 4 أونصات من الحليب المزدوج
وجبة الغداء	• نصف قطعة برجر بالجبن مع المايونيز والكاتشب • 15 إصبع بطاطس مقلية • 4 أونصات من حليب الشوكولاتة المصنوع من الحليب المزدوج
وجبة خفيفة في الظهيرة	• شريحة خبز مع الأفوكادو • 4 أونصات من نكتار الكمثرى
وجبة العشاء	• قطعة (مربع 2 بوصة) من اللازنيا باللحم • نصف كوب بازلاء مع البصل والزبدة أو صلصة الكريمة • 4 أونصات من الشاي المُثلج المُحلى
وجبة مسائية	• نصف كوب من الكاسترد المضافة إليه كريمة مخفوقة

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• 4 أونصات من نكتار الكمثرى • شريحة واحدة من التوست الفرنسي مع ربع كوب من المكسرات المطحونة والزبدة وشراب السكر
وجبة خفيفة صباحية	• 4 أونصات من الزبادي بالخوخ • مخفوق الفواكه
وجبة الغداء	• نصف كوب من المعكرونة والجبن مع إضافة المزيد من الجبن المبشور • نصف كوب من القرنبيط مع فتات الخبز المقلية • 4 أونصات من نكتار المشمش
وجبة خفيفة في الظهيرة	• 8 أونصات من الزبادي بالفواكه
وجبة العشاء	• 2 أونصة شريحة لحم • نصف كوب من الفاصوليا المقلية مع شرائح اللوز • 4 أونصات من عصير العنب
وجبة مسائية	• شريحة (2 بوصة) من فطيرة التفاح مع أونصة واحدة من جبن الشيدر • نصف كوب من الآيس كريم عالي المحتوى الدهني

*يحتوي الآيس كريم عالي المحتوى الدهني على حوالي 100 سعر حراري إضافي لكل حصة طعام أكثر من الآيس كريم العادي. كما يحتوي أيضًا على حوالي 20 جرام لكل حصة تبلغ نصف كوب.

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• أومليت مكون من بيضة واحدة وجبن وسبانخ مقلية في الزبدة • 4 أونصات من عصير البرتقال
وجبة خفيفة صباحية	• نصف كوب من الفول السوداني المحمص • ربع كوب من الفواكه المجفف
وجبة الغداء	• نصف شطيرة من سمك التونا مع المايونيز • 4 أونصات من نكتار المانجو
وجبة خفيفة في الظهيرة	• 10 شرائح تورتيلا مع غموس جبن الشيدر السائل أو الأفوكادو • 4 أونصات من الشاي المُثلج المُحلى
وجبة العشاء	• فطيرة القدر بالدجاج • 4 أونصات من مخفوق فاكهة التوت البري
وجبة مسائية	• نصف كوب من بودينغ الأرز المزين بالكريمة المخلوطهة • 4 أونصات من الشوكولاتة الساخنة المصنوعة من الحليب

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• ثلاثة أرباع كوب من الجرانولا أو حبوب نخالة الزبيب • 4 أونصات من الحليب
وجبة خفيفة صباحية	• 2 بيضة محشوة • 4 أونصات من نكتار الكمثرى
وجبة الغداء	• نصف شطيرة من الجبنة المقلية والطماطم • 4 أونصات من الليمونادة المحلاة
وجبة خفيفة في الظهيرة	• ساق كرفس محشوة بالجبنة الكريمية أو الجبنة بالأعشاب • 4 أونصات من نكتار المشمش
وجبة العشاء	• 2 أونصة من الدجاج المقلي • نصف كوب من السبانخ الكريمية • نصف كوب من البطاطا الحلوة المهروسة المصنوعة بالزبدة
وجبة مسائية	• شطيرة "مقرمشات غراهام" مع ملعقة صغيرة من زبدة الفول السوداني وقطع حلوى الخطمي • 4 أونصات من الحليب المخلوطه العادي مع الشوكولاتة

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• فطيرة توت أزرق واحدة مصنوعة بالحليب أو النصف والنصف مع الزبدة وشراب السكر • بيضة واحدة • 4 أونصات من الشوكولاتة الساخنة المصنوعة بالحليب
وجبة خفيفة صباحية	• ربع كوب من الفستق • 4 حبات مشمش مجفف • 4 أونصات من عصير التفاح
وجبة الغداء	• شريحة واحدة من خبز الحبوب الكاملة مع زبدة اللوز وعسل النحل • 4 أونصات من الحليب المزدوج
وجبة خفيفة في الظهيرة	• 2 ملعقة كبيرة حمص و10 شرائح من خبز البيتا أو البسكويت المملح • 4 أونصات من عصير العنب
وجبة العشاء	• كوب واحد من معكرونة زيتي المخبوزة مع الحليب كامل الدسم وجبنة الريكوتا والجبنة الموتزاريلا • نصف كوب من البروكلي مع الثوم والزيت • 4 أونصات من الماء الفوار مع بعض العصير
وجبة مسائية	• نصف كوب من الآيس كريم عالي المحتوى الدهني المزين بشراب الشوكولاتة والمكسرات والكريمة المخلوطهة • 4 أونصات من الحليب المزدوج

الوجبة	قائمة نموذجية للنظام الغذائي العادي
وجبة الافطار	• ثلث كوب من الجرانولا • ثلاثة أرباع كوب زبادي • 4 أونصات من نكتار المشمش
وجبة خفيفة صباحية	• فطيرة مافن صغيرة مع الزبدة أو الجبنة الكريمية والجيلي • 4 أونصات من الحليب المزدوج
وجبة الغداء	• إصبع دجاج (3 بوصات) واحد وجبن الكويساديلا مع الكريمة الحامضة والصلصة و/أو الأفوكادو • 4 أونصات من عصير التفاح
وجبة خفيفة في الظهيرة	• نصف كوب من الكاجو المحمص • 4 أونصات من الموز • مخفوق الفواكه
وجبة العشاء	• 2 أونصة من السمك المخبوز مع صلصة الخل والبصل الأحمر • حبة بطاطا صغيرة مخبوزة مع الكريمة الحامضة والثوم المعمر • نصف كوب من الفاصوليا والجزر مع الزبدة • 4 أونصات من عصير التوت البري
وجبة مسائية	• نصف كوب من الفراولة في الكريمة الثقيلة أو النصف والنصف المزينة بالسكر • 4 أونصات من الحليب المزدوج

القوائم النموذجية للنظام الغذائي النباتي

الوجبة	قائمة نموذجية للنظام الغذائي النباتي
وجبة الافطار	• ثلاثة أرباع كوب من الشوفان المطهو بالحليب، مع الزبيب والجوز والسكر البني والزبدة • 4 أونصات من حليب الشوكولاتة الساخنة
وجبة خفيفة صباحية	• نصف باغل مع الخضروات والجبنة الكريمية • 4 أونصات من مخفوق فاكهة الفراولة
وجبة الغداء	• نصف شطيرة من زبدة الفول السوداني والجيلي على خبز الحبوب الكاملة • 4 أونصات من الحليب المزدوج
وجبة خفيفة في الظهيرة	• كوب من الفشار • 4 أونصات من عصير التفاح
وجبة العشاء	• شريحة (2 بوصة) بروكلي مع تارت الجبن • طبق سلطة صغير مع الجبنة الفيتا والزيتون وزيت الزيتون والخل • 4 أونصات من مخفوق اللوز بالشوكولاتة
وجبة مسائية	• 4 ملاعق كبيرة من الحمص على نصف قطعة خبز بيتا محمص • 4 أونصات من نكتار الخوخ

الوجبة	قائمة نموذجية للنظام الغذائي النباتي
وجبة الافطار	• شريحة من خبز الحبوب الكاملة • أونصة واحدة من جبن مونيتسر • 4 أونصات من عصير البرتقال
وجبة خفيفة صباحية	• 8 أونصات من مخفوق زبدة الفول السوداني
وجبة الغداء	• نصف قطعة برجر نباتي على قطعة خبز مع صلصة الرانش والمخلل والبصل • 15 إصبع بطاطس مقلية • 4 أونصات من الماء المكربن والعصير
وجبة خفيفة في الظهيرة	• 4 ملاعق كبيرة من غموس الأفوكادو • 8 رقائق تورتيلا • 4 أونصات من نكتار الخوخ
وجبة العشاء	• كوب واحد من فيتوتشيني ألفريدو • نصف كوب من السبانخ المقلية مع الثوم في الزيت • 4 أونصات من عصير العنب
وجبة مسائية	• إصبع موز صغير مغموس في شراب الشوكولاتة وملفوف بقطع الفول السوداني • 4 أونصات من حليب اللوز

الوجبة	قائمة نموذجية للنظام الغذائي النباتي
وجبة الافطار	• بيضة مقلية واحدة • شريحة واحدة من خبز الحبوب الكاملة مع الزبدة ومربى التوت البري • 4 أونصات من نكتار المشمش
وجبة خفيفة صباحية	• 4 حبات مشمش مجفف • ربع كوب لوز • 4 أونصات من مخفوق الزبادي العادي بالفانيليا
وجبة الغداء	• ربع شطيرة فلافل مع الطحينة • 4 أونصات من الليمونادة
وجبة خفيفة في الظهيرة	• 4 قطع مقرمشات غراهام مع ملعقتين كبيرتين من زبدة الفول السوداني • 4 أونصات من الحليب المزدوج
وجبة العشاء	• كوب واحد من المعكرونة مع صلصة البيستو • نصف كوب من أطراف الهليون الباردة مع صلصة الجبنة الزرقاء • 4 أونصات من عصير العنب
وجبة مسائية	• تفاحة واحدة مخبوزة مع سكر القرفة والزبدة والجوز • 4 أونصات من حليب الصويا مع الفانيلي

القوائم النموذجية للنظام الغذائي النباتي الصِرف

الوجبة	قائمة نموذجية للنظام الغذائي الصِرف
وجبة الافطار	• نصف كوب من المويسلي مع شرائح الخوخ الطازج • 4 أونصات من الصويا أو الأرز أو حليب اللوز
وجبة خفيفة صباحية	• كوب واحد من مخفوق الجوز والقيقب الخالي من الحليب الحيواني • نصف كوب من الفستق المحمص
وجبة الغداء	• نصف كوب من اللنغويني مع الثوم والزيت • كرة لحم نباتية واحدة • شريحة صغيرة من خبز الثوم • 4 أونصات من حليب الأرز
وجبة خفيفة في الظهيرة	• غموس الأفوكادو مع رقائق التورتيلا • 4 أونصات من نكتار المشمش
وجبة العشاء	• نصف كوب من التوفو وطاجن فاصوليا بيضاء • نصف كوب من الأرز البني • نصف كوب من السبانخ المقلية مع حبوب الصنوبر المحمصة • 4 أونصات من نكتار الخوخ
وجبة مسائية	• شريحة واحدة (2 بوصة) من كعكة "جبنة" التوفو الحريرية • 4 أونصات من الحليب المخلوطه بالفانيليا الخالي من الحليب الحيواني

الوجبة	قائمة نموذجية للنظام الغذائي الصِرف
وجبة الافطار	• سلسلة واحدة من سجق الصويا • 2 فطيرة صغيرة مصنوعة من حليب الصويا والزبدة النباتية وشراب القيقب • 4 أونصات من عصير الأنانس
وجبة خفيفة صباحية	• 2 ملعقة كبيرة حمص و10 شرائح من خبز البيتا أو البسكويت المملح
وجبة الغداء	• نصف قطعة برجر نباتي مع جبنة غير مصنوعة من الحليب الحيواني على قطعة خبز مع المايونيز النباتي والكاتشب والمخلل والبصل • 15 إصبع بطاطس مقلية • 4 أونصات من مخفوق اللوز بالشوكولاتة والفانيليا الخالي من الحليب الحيواني
وجبة خفيفة في الظهيرة	• نصف كوب من الفواكه والجرانولا والمكسرات • 4 أونصات من نكتار الخوخ
وجبة العشاء	• كوب واحد من الفول مع الفلفل الحار وجبنة الصويا • شريحة واحدة من خبز الذرة الخالي من الحليب الحيواني والبيض • 4 أونصات من عصير التفاح الفوار
وجبة مسائية	• نصف كوب من التوت الأزرق المزين بالسكر والكريمةالمخلوطةالخالية من الحليب الحيواني • 4 أونصات من عصير التوت البري

المحاضرة الخامسه

عنوان المحاضرة : فوائد الفيتامينات والمكملات الغذائية خلال علاج السرطان

مكان المحاضرة:

وقت المحاضرة: (45 دقيقة)

الوسائل التعليمية:

1 . محاضرة على ورق

2 . عرض شرائح توضيحية

3 . بوسترات

4 . مناقشة جماعية

المكملات الغذائية والفيتامينات هي المواد التكميلية التي يتم تناولها لتعويض نقص ما في غذائنا المتناول بشكل يومي، وقد تشمل الفيتامينات والمعادن، وبعض الاعشاب الطبية، والإنزيمات، والأحماض الأمينية.

يتوجه العديد من مرضى السرطان للتركيز على تناول أنواع محددة من الفيتامينات والمكملات الغذائية بهدف التركيز على أخذ عنصر أو مغذي معين دون اخر بهدف التقليل من أعراض المرض، أوعلاجه، أو المساعدة في الوقاية من عودته بعد العلاج.

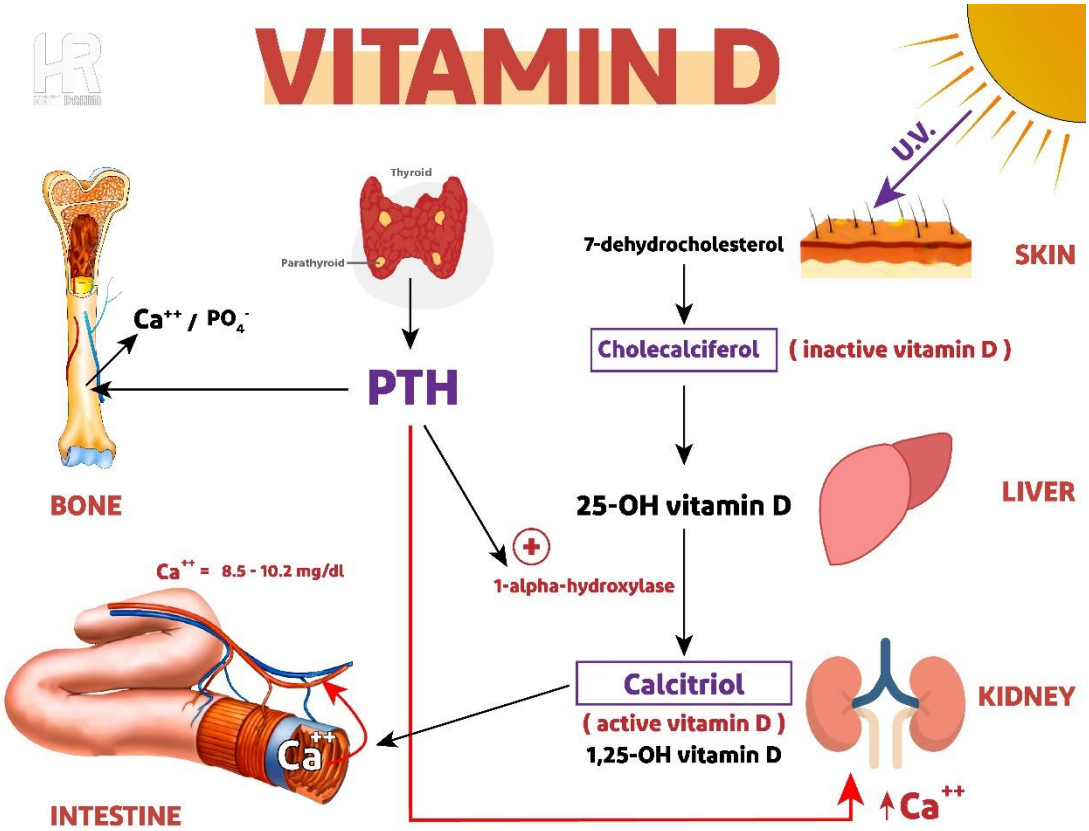
فما هي فوائد الفيتامينات والمكملات الغذائية خلال علاج السرطان؟ وما حقيقة هذه الفوائد؟

ومع هذا سنحدثكم هنا عن بعض أنواع المغذيات والمكملات الغذائية التي قد حظيت بدعم علمي من قبل العديد من الدراسات والأبحاث التي أكدت كون أن لها دور إيجابي على مريض السرطان وقد تساهم في علاجه في ما يأتي

فيتامينD

هو أحد الفيتامينات الذائبة في الدهون، يتم تصنيعه في الجسم بشكلٍ طبيعيّ من خلال التعرض لاشعه الشمس لمده 10-20 دقيقه كما يمكن الحصول عليه عن طريق أخذ المكملات الغذائية

وبعض الأطعمة مثل زيت كبد السمك والبيض، ويساعد فيتامين D الجسم على استخدام الكالسيوم والفسفور لبناء وتقوية العظام والأسنان لذلك فإن نقصه يسبب الكساح لدى الأطفال وهشاشة العظام لدى البالغين، يوجد لفيتامين D شكلين رئيسيين هما D2 الذي يتكون بشكل طبيعي في النباتات و D3الذي يتم تصنيعه في الجسم نتيجةً لتعرّض الجلد للأشعة فوق البنفسجية للشمس، يتصرّف فيتامين D في الجسم بشكل أقل كفيتامين وبشكل أكبر كأنه هرمون مما يجعل له تأثيرًا كبيرا على الجسم مثل الوزن وكيفية عمل الأعضاء.



علاقة فيتامين D بالسرطان

علاقة فيتامين D بالسرطان أظهرت الأبحاث وجود اختلاف بمعدلات الإصابة والوفاة بسبب مرض السرطان حيث كانت أقل بين الأفراد الذين يعيشون على مناطق خطوط العرض الجنوبية التي ترتفع فيها نسبة التعرّض لأشعة الشمس والتي تُعرف بدورها في تصنيع فيتامين D في الجسم، وفي الحديث عن علاقة فيتامين D بالسرطان فقد أشارت إحدى الدراسات الحديثة أن ما يزيد عن ثلاثة أرباع مرضى السرطان لديهم مستويات منخفضة من فيتامين D كما أظهرت النتائج المخبرية أنّه يملك خصائصًا مضادةً للورم وأنّه يلعب دورًا في تنظيم الجينات المشاركة في تكاثر الخلايا السرطانية ، ، فيما يأتي شرح علاقة فيتامين D بالسرطان.

سرطان القولون والمستقيم: أظهرت العديد من الدراسات أن المستويات الأعلى لفيتامين D ترتبط بفرص أقل للإصابة بسرطان القولون والمستقيم، ولا تزال التجارب السريرية قائمة للبحث في تأثيره على الأشخاص الذين يتناولونه بالتوازي مع العلاج.

سرطان الثدي: تُظهر الدراسات أن فيتامين D لا يمنع الإصابة بسرطان الثدي بشكلٍ عام، وجود فيتامين D بمستواه الطبيعي لدى النساء يجعل احتمالية الإصابة بسرطان الثدي 63% أقل من النساء اللّاتي ليس لديهن ما يكفي منه.

اللوكيميا: هو سرطان الدم الذي يؤثر غالبًا على خلايا الدم البيضاء أو كريات الدم البيضاء، تشير الدراسات إلى أنّ انخفاض مستويات فيتامين D نتيجةً لقلة التعرّض لأشعة الشمس قد يكون أحد أسباب اللوكيميا حيث أظهرت تفاعل مستقبلات فيتامين D في الدم مع خلايا سرطان الدم النخاعي الحاد.

سرطان المرحلة الثالثة: تشير المرحلة الثالثة من السرطان إلى حجم أكبر للورم وانتشار أكثر للمرض خارج العضو الذي تطوّر فيه في البداية، ويعّد المرضى ذوي مستويات فيتامين D أقل من المتوسط -24 نانوغرام/مل – عُرضةً لتطوّر المرض لديهم للمرحلة الثالثة أكثر بثلاثة أضعاف من الأشخاص ذوي المستويات الأعلى.

انخفاض خطر الوفاة: بحثت إحدى الدراسات في علاقة فيتامين D بالسرطان وخطر الوفاة بالمرض، وأظهر التحليل أن المرضى الذين تناولوا مكملات فيتامين D كانوا أقل عرضةً للوفاة من السرطان بنسبة 13% من المرضى الآخرين الذين أخذوا دواءً وهميًا بذات الوقت.

فوائد فيتامين D الصحية يتم إجراء الكثير من الدراسات حول فوائد فيتامين D للصحة ولا يزال العلماء في صدد استكشاف تأثيراته على الجسم ودوره في الوقاية من الأمراض وعلاجها، فيما يأتي ذكر بعض فوائده.

يساهم في حماية العظام ومنع الهشاشة.

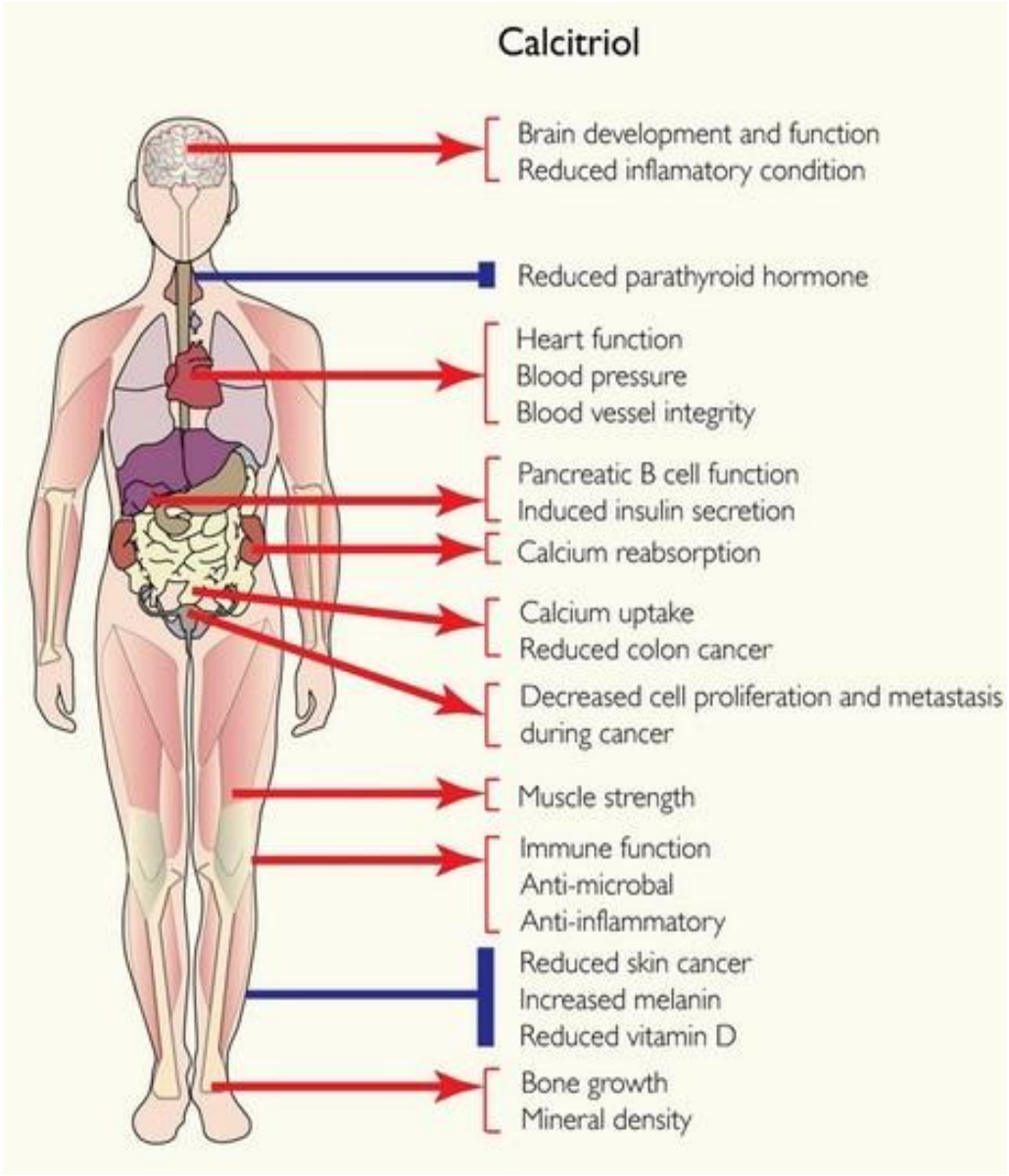
تحسين أعراض الاكتئاب الموسمي. يساعد في توفير حماية من التهابات الجهاز التنفسي.

يساعد في الحماية من أمراض القلب والسكتة الدماغية.

يقلل من خطر الإصابة بالسكري النوع الأول والثاني.

يساهم في منع الخرف وتدهور الوظائف الإدراكية لدى الشخص.

يساهم في تحسين أعرض أمراض المناعة الذاتية.



الشكل أعلاه يوضح دور فيتامين د الفعال علئ كل أعضاء الجسم

ما هو الكالسيوم؟

الكالسيوم هو معدن غذائي أساسي يوجد بشكل شائع في الحليب واللبن (الزبادي) والجبن والخضروات ذات اللون الأخضر الداكن. يوجد أيضًا في بعض الحبوب والبقوليات (بما في ذلك البازلاء والفول والعدس والفول السوداني) والمكسرات.

الكالسيوم مكون رئيسي للعظام والأسنان. كما أنه ضروري لتخثر الدم لوقف النزيف ولعمل الأعصاب والعضلات والقلب بشكل طبيعي.

ما هي كمية الكالسيوم اللازمة لصحة جيدة؟

الكالسيوم جزء مهم من نظام غذائي صحي. ومع ذلك، فإن المقدار المأخوذ الموصى به يختلف باختلاف العمر. كما يتضح من الجدول التالي، فإن أعلى مقدار مأخوذ موصى به هو للأطفال والمراهقين الذين تتراوح أعمارهم بين 9 و 18 عامًا، عندما تنمو العظام بسرعة.

للبالغين (بما في ذلك النساء الحوامل أو المرضعات) وللأطفال بعمر 1 سنة أو أكبر ، فإن الحد الأعلى الآمن لتناول الكالسيوم هو 2.5 غرام (أو 2500 ملغ) في اليوم .

توصيات غذائية للكالسيوم ، ذكور وإناث *

الفئة العمرية	التوصيات الغذائية (ملغ ** / يوم)
6-0 اشهر	210 ملغ
12-7 شهر	270 ملغ
3-1 سنوات	500 ملغ
8-4 سنوات	800 ملغ
18-9 سنة	1300 ملغ

19-50 سنة	1000 ملغ
51 سنة وما فوق	1200 ملغ
* 1997 الأكاديمية الوطنية للعلوم لجنة الكالسيوم والمغذيات ذات الصلة (1).	
** ملغ = مليغرام.	

يمكن أن يؤدي الكثير من الكالسيوم في النظام الغذائي ومن المكملات الغذائية إلى آثار جانبية غير مرغوب فيها.

أظهر المسح المستمر الذي أجرته وزارة الزراعة الأمريكية 1994-1996 لمآخذ الطعام من قبل الأفراد أن متوسط مدخول الكالسيوم اليومي في الولايات المتحدة للذكور والإناث فوق سن 9 كان 925 ملغ و 657 ملغ ، على التوالي ، أو أقل من المدخول الموصى به .

ما هي كمية الكالسيوم في الأطعمة ومكملات الكالسيوم؟

يوجد الكالسيوم في العديد من الأطعمة. تشمل الأطعمة الغنية بالكالسيوم منتجات الألبان والخضروات ذات اللون الأخضر الداكن وبعض منتجات الصويا والأسماك والمكسرات والبقوليات. يوضح الجدول التالي مقدار الكالسيوم الموجود في بعض الأطعمة الشائعة.

كميات الكالسيوم في بعض الأطعمة الشائعة *

الطعام ، الكمية القياسية	الكالسيوم (ملغ)
زبادي بالفواكه ، زبادي قليل الدسم ، 8 أونصة **	345
جبنة موزاريلا ، منزوعة الدسم جزئيًا ، 1.5 أونصة	311
حليب خالي الدسم 1 كوب	306
السردين ، الأطلسي ، بالزيت ، مصفى ، 3 أونصة	325
توفو صلب ، محضر بالنيجاري ، نصف كوب	253
سبانخ مطبوخة من المجمدة ، نصف كوب	146
فاصوليا بيضاء معلبة نصف كوب	96
* ملاحظة: لا يُقصد من هذه القائمة أن تكون شاملة. مقتبسة من الولايات المتحدة. إرشادات النظام الغذائي لوزارة الصحة والخدمات الإنسانية للأمريكيين 2005.	
** oz = اونصة ، وحدة قياس.	

هل هناك دليل على أن الكالسيوم يمكن أن يساعد في تقليل مخاطر الإصابة بأنواع أخرى من السرطان؟

تشير نتائج بعض الدراسات وليس كلها إلى أن تناول كميات كبيرة من الكالسيوم قد يزيد من خطر الإصابة بسرطان البروستات. على سبيل المثال ، قام التحقيق الأوروبي المستقبلي في السرطان والتغذية بتحليل مآخذ الأطعمة الحيوانية (اللحوم والدواجن والأسماك ومنتجات الألبان وما إلى ذلك) والبروتين والكالسيوم فيما يتعلق بمخاطر الإصابة بسرطان البروستات بين أكثر من 142000 رجل ووجد أن ارتباط تناول كميات كبيرة من البروتين أو الكالسيوم من منتجات الألبان بزيادة خطر الإصابة بسرطان البروستات . ومع ذلك ، لم يكن الكالسيوم من مصادر غير الألبان مرتبطًا بزيادة المخاطر . بالإضافة إلى ذلك ، أظهر تحليل مستقبلي لمنتجات الألبان ومقدار الكالسيوم بين أكثر من 29000 رجل مشاركين في تجربة فحص سرطان البروستات والرئة والقولون والمبيض (PLCO) التي أجراها المعهد الوطني للسرطان (NCI) ، زيادة مخاطر الإصابة بسرطان البروستات المرتبط بالنظام الغذائي العالي. مآخذ الكالسيوم ومنتجات الألبان ، وخاصة منتجات الألبان قليلة الدسم . لم يرتبط الكالسيوم من المكملات بزيادة خطر الإصابة بسرطان البروستات . في المقابل ، أظهرت نتائج دراسة النظام الغذائي والصحة -NIH AARP عدم زيادة خطر الإصابة بسرطان البروستات المرتبط بالكالسيوم الكلي أو الكالسيوم الغذائي أو تناول الكالسيوم التكميلي .

كيف يمكن أن يساعد الكالسيوم في الوقاية من السرطان؟

على الرغم من أن الآلية الدقيقة التي قد يساعد بها الكالسيوم في تقليل خطر الإصابة بسرطان القولون والمستقيم غير واضحة ، إلا أن الباحثين يعرفون أنه على المستوى الكيميائي الحيوي ، يرتبط الكالسيوم بالأحماض الصفراوية والأحماض الدهنية في الجهاز الهضمي لتشكيل مجمعات غير قابلة للذوبان تعرف باسم صابون الكالسيوم. هذا يقلل من قدرة الأحماض (أو مستقلباتها) على إتلاف الخلايا في بطانة القولون وتحفيز تكاثر الخلايا لإصلاح الضرر. قد يعمل الكالسيوم أيضًا بشكل مباشر لتقليل تكاثر الخلايا في بطانة القولون أو يتسبب في تمايز خلايا القولون المتكاثرة ، مما يؤدي بدوره إلى تقليل تكاثر الخلايا. قد يحسن الكالسيوم أيضًا الإشارة داخل الخلايا ويسبب تمايز الخلايا السرطانية و موتها .

Effectiveness of Nutritional Educational Program on Nurses' Knowledge for Patients with Cancer at Oncology Center in AL-Diwaniyah Governorate.

Dear Nurse:

It is pleasure to have as participant in this study. We would like you to answer all the questions in this list for the benefits of you and this research. We would like you to trust and be confident that your responses will remain very confidential and no one has access to them. Your cooperation with us is greatly considered and appreciated.
With Best Regards,

Part one: Sociodemographic Data:

1.Age ☐ years

2.Gender Male ☐ Female ☐

3. Residency: Rural ☐ Urban ☐

4. Level of Education

Nursing graduate ☐

Nursing High School Graduate ☐

Diploma Degree Graduate ☐

College of Nursing Graduate ☐

Master's or Doctorate of Nursing ☐

5. Years of Employment in Nursing ☐ Years.

6. Years of Experience in Oncology ☐ Years.

7. Training in Oncology:

o Yes ☐

o NO ☐

If the answer is yes. What is the number of courses?

☐

number of courses:

Duration of the course:
inside Iraq a week ☐ Month ☐ more than a month ☐

outside Iraq a week ☐ Month ☐ more than a month ☐

Part Two: Nurses' Knowledge about Nutrition of Oncology Patients.

list	Items	answer		
		I know	Uncertain	Don t know
1	Eating sugar worsens cancer.			
2	All oncology patients consume a diet rich in energy.			
3	The patient should drink a lot of soft drinks before and during meals so as not to lose his appetite			
4	Oncology patient should eat a diet rich in vegetables, fruits and whole grains			
5	Side effects of chemotherapy include nausea, fatigue, hair loss, and changes in the urinary tract			
6	Nutritional assessment should begin as soon after diagnosis as possible and should take into account the goals of treatment (curative, control or alleviation) with a focus on both the current nutritional status and expected symptoms related to nutrition.			
7	All oncology patients consume small portions of food during the day			
8	To avoid diarrhea, the patient should eat a lot of fried or fatty foods			

9	All oncology patients consume a diet rich in protein.			
10	All oncology patients need to take oral nutritional supplements.			
11	All cancer patients need to drink more fluids.			
12	All oncology patients should achieve and maintain a healthy weight.			
13	If the patient is overweight or obese, he should limit the intake of high-calorie foods and drinks and increase physical activity to promote weight loss			
14	To avoid problems with the urinary tract, kidneys and bladder, the patient should avoid caffeinated drinks.			
15	Symptoms such as loss of appetite, early satiety, changes in taste and smell, and bowel disorders are common side effects of cancer.			
16	Excessive weight loss and poor nutritional status can occur early in the course of some cancers, although the prevalence of malnutrition and weight loss varies widely across cancer types and stage of diagnosis.			
17	Consuming enough calories to prevent additional weight loss is vital for sufferers who are at risk of losing weight due to anti-cancer therapies that affect the digestive system.			
18	Additional weight gain is a frequent complication of treatment			
19	Cancer can cause profound metabolic and physiological changes that can affect nutritional requirements for macronutrients (carbohydrates, proteins and microelements (vitamins and minerals).			
20	All major cancer treatment methods, including surgery, radiation and chemotherapy, can greatly affect nutritional needs.			

21	The overall goals of nutritional care for patients should be to prevent or reduce nutrient deficiencies, and to achieve or maintain a healthy weight			
22	To relieve the feeling of nausea and vomiting, the patient should eat fast food			
23	Patients who are unable to eat adequate amounts of food and are at risk of malnutrition may require other means of nutritional support, such as drug therapy using appetite stimulants, enteral feeding via tube feeding, or parenteral nutrition.			
24	A subset of dietary supplements, antioxidants, can prevent cellular oxidative damage to cancer cells needed for treatments, such as radiotherapy and chemotherapy, to be effective.			
25	Symptoms of anemia include pallor or yellowing of the face.			
26	One of the nursing interventions for a patient suffering from a lack of body fluids is the monitoring of fluids input and output.			
27	One of the complications of malnutrition is general weakness and a feeling of fatigue associated with the patient, which in turn negatively affects his psyche (sadness, anxiety, lack of self-confidence…).			
28	To maintain adequate amounts of fluids during cancer treatment, adequate amounts of water should be taken in addition to fluids other than water (beef broth, fish broth, and broth).			
29	Malnutrition and rapid weight loss during the treatment of cancerous diseases can cause complications that can disrupt the proper functioning of the treatment protocol.			

30	One of the bad habits of cancer patients is to eat every few hours without feeling hungry.			
31	Encouraging more low-calorie drinks (such as water, coffee, tea, and diet drinks).			
32	Using bone broth with soup is a tip for adding more protein to your diet			
33	100 calories and 9 grams of protein can be obtained from a cup of Insure Milk.			
34	Whole milk is a useful meal for cancer patients.			
35	One of the useful meals for cancer patients who suffer from a change in food taste is the use of onions or garlic to give a pleasant flavor to vegetables or meat.			
36	In patients with anorexia or early satiety and at risk of being underweight, eating smaller, more frequent meals can help fill in the patient's nutritional intake.			

بين يديك استبانة لأطروحة الدكتوراه الموسومة بـ:

(فاعلية البرنامج التعليمي الغذائي في معارف الممرضين لمرضى السرطان في مركز الاورام في محافظة الديوانية).

إنه لمن دواعي سروري أن تكون مشاركًا في هذه الدراسة. نود منك أن تجيب على جميع الأسئلة الواردة في هذه القائمة بحرية. نود منك أن تثق كل الثقة في أن اجوبتك ستبقى سرية. يعتبر تعاونك معنا موضع اهتمام وتقدير كبيرين.

مع أطيب تحياتي وتقديري.

يرجى الإجابة على جميع الفقرات ... مع التقدير...

(الجزء الأول): المعلومات الديموغرافية.

التسلسل ☐

1. العمر: ☐ سنة

2. الجنس:

ذكر ☐ انثى ☐

3.السكن

ريف ☐ مدينه ☐

4. المستوى التعليمي:

خريج دورة تمريض: ☐

خريج اعدادية تمريض: ☐

خريج معهد تمريض : ☐

بكالوريوس تمريض : ☐

ماجستير او دكتوراه تمريض: ☐

4-عدد سنوات الخدمة في مؤسسات الصحة: ☐

5- سنوات الخبرة في ردهات الاورام: ☐ سنة

هل شاركت في دورة تدربيه عن التغذية في الأورام : نعم ☐

كلا ☐

عدد الدورات ☐

مدة الدورة: ☐

داخل العراق اسبوع ☐ شهر ☐ اكثر من شهر ☐

خارج العراق اسبوع ☐ شهر ☐ اكثر من شهر ☐

الجزء الثاني: معارف الممرضين حول الإرشادات الغذائية لمرضى السرطانات:

اجب عن الاسئلة الاتية لطفا:

القائمة	الفقرات	الاجابة		
		اعرف	غير متاكد	لا اعرف
1	يؤدي تناول السكر إلى تفاقم حالة السرطان			
2	يستهلك جميع مرضى الأورام نظامًا غذائيًا غنيًا بالطاقة			
3	على المريض تناول الكثير من المشروبات الغازية قبل واثناء الوجبات كي لا يفقد شهيته			
4	يجب أن يتناول مريض الأورام نمطًا غذائيًا غنيًا بالخضروات والفواكه وكل الحبوب			
5	تتضمن الاعراض الجانبية للعلاج الكيميائي على الغثيان وتعب وارهاق وتساقط الشعر وتغير في المسالك البولية			
6	يجب أن يبدأ التقييم الغذائي للمصابين في أقرب وقت بعد التشخيص قدر الإمكان ويجب أن يأخذ في الاعتبار أهداف العلاج (العلاجية او السيطرة او التخفيف) مع التركيز على كل من الحالة الغذائية الحالية والأعراض المتوقعة المتعلقة بالتغذية			
7	يستهلك جميع مرضى الأورام حصصًا غذائية صغيرة خلال اليوم			
8	لتجنب الإصابة بالإسهال على المريض الاكثار من الأطعمة المقلية او الدهنية			
9	يستهلك جميع مرضى الأورام نظامًا غذائيًا غنيًا بالبروتين.			
10	يحتاج جميع مرضى الأورام إلى تناول مكملات غذائية عن طريق الفم			

القائمة	الفقرات	الاجابة		
		اعرف	غير متاكد	لا اعرف
11	يحتاج جميع مرضى الأورام إلى شرب الكثير من السوائل			
12	يجب على جميع مرضى الأورام تحقيق والحفاظ على وزن صحي			
13	إذا كان المريض يعاني من زيادة الوزن أو السمنة، يجب ان يحد من تناول الأطعمة والمشروبات عالية السعرات الحرارية وزيادة النشاط البدني لتعزيز فقدان الوزن			
14	لتجنب مشاكل المسالك البولية الكلى والمثانة على المريض تجنب المشروبات التي تحوي على الكافين			
15	تعد الأعراض مثل فقدان الشهية، والشبع المبكر، والتغيرات في الطعم والشم، واضطرابات الأمعاء من الآثار الجانبية الشائعة للسرطان.			
16	من الممكن أن يحدث فقدان الوزن بشكل كبير وسوء الحالة التغذوية في وقت مبكر من مسار بعض أنواع السرطان، على الرغم من أن انتشار سوء التغذية وفقدان الوزن يختلف اختلافًا كبيرًا عبر أنواع السرطان ومرحلة التشخيص			
17	إن استهلاك سعرات حرارية كافية لمنع فقدان الوزن الإضافي أمر حيوي للمصابين المعرضين لخطر فقدان الوزن بسبب علاجات مضادة للسرطان الذي تؤثر على الجهاز الهضمي			
18	زيادة الوزن الإضافية تعد من المضاعفات المتكررة للعلاج			
19	يمكن أن يتسبب السرطان في حدوث تغييرات أيضية وفسيولوجية عميقة يمكن أن تؤثر على متطلبات التغذية للمغذيات الكبيرة(الكربوهيدرات، البروتينات والصغرى(الفيتامينات والمعادن).			
20	يمكن أن تؤثر جميع الطرق الرئيسية لعلاج السرطان، بما في ذلك الجراحة والإشعاع والعلاج الكيميائي، بشكل كبير على الاحتياجات الغذائية.			
21	يجب أن تكون الأهداف العامة للرعاية الغذائية للمصابين هي منع أو تقليل نقص المغذيات، وتحقيق أو الحفاظ على وزن صحي			
22	لتخفيف الشعور بالغثيان والتقيؤ على المريض تناول الوجبات السريعة			
23	المرضئ الغير القادرين علئ تناول كميات كافيه من الغذاء والمعرضين لخطر الإصابة بسوء التغذية قد تكون هناك حاجة إلى وسائل أخرى للدعم الغذائي، مثل العلاج الدوائي باستخدام منبهات الشهية، والتغذية المعوية عن طريق التغذية الأنبوبية، أو التغذية الوريدية.			
24	يمكن لمجموعة فرعية من المكملات الغذائية، مضادات الأكسدة، منع الضرر التأكسدي الخلوي للخلايا السرطانية اللازمة للعلاجات، مثل العلاج الإشعاعي والعلاج الكيميائي لتكون فعالة.			
25	تتضمن أعراض الإصابة بفقر الدم شحوب الوجه أو اصفرار الوجه.			
26	من التداخلات التمريضية لمريض يعاني من نقص سوائل الجسم هو مراقبة السوائل المأخوذة والمطروحة.			
27	من مضاعفات سوء التغذية ضعف عام وشعور بالتعب الملازم للمريض والذي بدوره ينعكس سلبا على نفسيته (حزن، قلق، عدم الثقة في النفس...).			
28	للمحافظة علئ كميات كافيه من السوائل اثناء علاج السرطان يجب تناول كميات كافيه من الماء اضافه الئ سوائل اخرئ غير الماء (مرقة لحم البقر، حساء السمك، والمرق).			
29	إن سوء التغذية والهبوط السريع في الوزن أثناء علاج الامراض السرطانية يمكن أن يتسبب في مضاعفات يمكن أن تعطل حسن سير البروتوكول العلاجي			
30	من العادات السيئة لمرضى السرطان تناول الطعام كل بضع ساعات بدون الشعور بالجوع.			
31	التشجيع على الاكثار من المشروبات منخفضة السعرات الحرارية (مثل الماء			

القائمة	الفقرات	الاجابة		
		اعرف	غير متاكد	لا اعرف
	والقهوة والشاي ومشروبات الحمية الغذائية)			
32	يعتبر استخدم مرق العظام مع الحساء نصائح لإضافة كمية أكبر من البروتين إلى نظامك الغذائي.			
33	يمكن الحصول على 100سعرة حرارية و9 غرام من البروتين من خلال كوب من حليب انشور.			
34	الحليب كامل الدسم من الوجبات المفيدة لمرضى السرطان.			
35	من الوجبات المفيدة لمرضى السرطان الذين يعانون من تغير مذاق الطعام استخدام البصل أو الثوم لإعطاء نكهة محببة للخضروات أو اللحوم.			
36	المرضئ المصابين الذين يعانون من فقدان الشهية أو الشبع المبكر والمعرضين لخطر نقص الوزن، فإن تناول وجبات أصغر وأكثر تكرارًا يمكن ان تساعد علئ تناول الغذاء اللازم للمريض .			

ت	الاســـــــــم	اللقب العلمي	عدد سنوات الخبرة	مكـــان العـــمـل	الاختصاص الدقيق
1	د. محمد فاضل خليفة	أستـــــاذ	38	جامعة بغداد/ كلية التمريض	تمريض صحة المجتمع
2	د.امين عجيل ياسر الياسري	أستـــــاذ	37	جامعة بابل/ كلية التمريض	تمريض صحة المجتمع
	د. سلمى كاظم جهاد	أستـــــاذ	37	جامعة بابل/ كلية التمريض	تمريض صحة المجتمع
	د. اركان بهلول ناجي	أستـــــاذ	35	جامعة بابل/ كلية التمريض	تمريض صحة المجتمع
	د. عبد الكريم عبدالله محمود	أستـــاذ	35	جامعة الكوفة/ كلية الطب	بورد طب مجتمع
5	د. فاطمة وناس خضير	استاذ	29	جامعة الكوفة / كلية التمريض	تمريض صحة المجتمع
	د. وسام جبار قاسم	أستـــــاذ	25	جامعة بغداد / كلية التمريض	تمريض صحة المجتمع
.1	د. مرتضى غانم عداي	أستـــاذ مساعـــد	15	جامعة وارث الأنبياء / كلية التمريض	تمريض صحة المجتمع
.2	د. منصور عبد الله فلاح	أستـــــاذ مساعد	15	جامعة الكوفة / كلية التمريض	تمريض صحة مجتمع
.3	د. رعد كريم فرج	أستـــــاذ مساعد	20	جامعة بغداد/ كلية التمريض	تمريض صحة المجتمع
.4	د. وسن عبد الواحد رشيد	طبيب اختصاص	24	دائرة صحة بغداد/معهد بحوث التغذية	بورد عربي /طب الاطفال
.5	د. زينب غسان لطفي	طبيب اختصاص	22	دائرة صحة بغداد/معهد بحوث التغذية	بورد عربي /طب اسره
.6	د. علاء العمبكي	طبيب اختصاص	21	دائرة صحة الديوانية	اورام
.7	د. محسن احمد جاسم	طبيب اختصاص	18	دائرة صحة بغداد/معهد بحوث التغذية	بورد عربي /طب اسره
.8	د.اسامه موجد	طبيب اختصاص	15	دائرة صحة الديوانية	اورام
.9	د. فاطمة الخالدي	طبيب اختصاص تغذيه	14	دائرة صحة الديوانية	تغذيه

10	د. احمد عبد علي شهاد	طبيب اختصاص	12	دائرة صحة الديوانية	اورام
11	د.ندئ مصعب عباس	طبيب اختصاص	11	دائرة صحة بغداد/معهد بحوث التغذية	بورد عربي /طب اسره

الخلاصة

سوء التغذية مصدر قلق شديد وواسع الانتشار بين مرضى السرطان. وله تأثير كبير على تشخيصهم وجودة حياتهم. وفقًا للدراسات السابقة، 15 إلى 40 في المائة من مرضى السرطان خسروا اوزنهم أثناء خضوعهم للعلاج ، يمكن أن يرتفع هذا العدد إلى 85 بالمائة. نتيجة ذلك، قد يساعد العلاج المبكر والتثقيف الصحي بشأن المكملات الغذائية وسلوكيات المرضى على تحقيق نتائج أفضل وتجنب المضاعفات.

أهداف الدراسة هي تقييم معرفة الممرضين تجاه التعليمات الغذائية التي يحتاجها مرضى السرطان في مركز الأورام بالديوانية.

المنهجية تم إجراء تصميم دراسة شبه تجريبية في مركز الديوانية التخصصي للأورام، في الفترة من 17 مارس 2021 إلى 15 مايو 2022. ولأغراض الدراسة، تم بناء البرنامج والأداة من قبل الباحث. تم اختيار عينة الصدفة غير احتمالية من (60) ممرض/ة أورام تم اختيارهم للحصول على بيانات تمثيلية ودقيقة. بلغ حجم العينة (60) ممرض/ة مقسمة إلى مجموعتين إحداهما تضم (30) ممرض/ة كمجموعة الدراسة والأخرى تتكون من (30) ممرض/ة كمجموعة ضابطة. تعرضت مجموعات الدراسة للبرنامج التعليمي الذي يعنى بتغذية مرضى الأورام ، المجموعة الضابطة من ناحية أخرى، لم تخضع للبرنامج التعليمي. للحصول على بيانات من المشاركين في الدراسة، صمم الباحث اداة الاستبيان وتتكون من جزئيين: الجزء الأول هو المتغيرات الاجتماعية والديموغرافية والجزء الثاني معرفة الممرض/ة حول تغذية مرضئ السرطان. تم التحقق من صلاحية أداة الدراسة من خلال عرضها على (18) خبير، وتم تقييم موثوقيتها باستخدام نهج الالتصاق الداخلي. لتحديد الفرق بين مجموعات الدراسة، تم إجراء التحليل الوصفي والتحليل الاستدلالي التحليلي.

النتائج الدراسة أن هناك فرقًا كبيرًا جدًا بين مجموعات الدراسة (قبل الاختبارات وبعدها) من حيث (معرفة الممرضين حول التغذية لمرضى السرطان، (MEAN ± SD = 2.37 ± 0.451) مقارنة إلى درجة الاختبار القبلي (MEAN ± SD = 1.58 ± 0.402) بسبب فعالية البرامج التعليمية.

الاستنتاج الدراسة إلى أن البرامج التعليمية التي تركز على تغذية مرضى الأورام لديها فرصة كبيرة للنجاح.

التوصيات الحاجة إلى إنشاء تخصص تمريض تغذية في بلدنا على غرار البلدان المتقدمة الأخرى للحفاظ على صحة مجتمعنا. كذلك إنشاء دراسات تمريض عليا لمدة عام واحد للممرض/ة الأكاديمي في كليات التمريض لتقوية مهنة التمريض في هذا المجال. ودورات تدريبية متخصصة مع الامتحانات للاستفادة والتأثير على معرفة ممرض/ة الأورام، وممرض/ة الأورام يجب أن يكون لديهم دورات تعليمية خاصة في مرحلة قبل العمل في ردهات الامراض السرطان.

جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة بابل- كلية التمريض

فاعلية البرنامج التعليمي الغذائي في معارف الممرضين لمرضى السرطان في مركز الاورام في محافظة الديوانية

أطـــروحـــة

مـقـدمـة الـى مجـلـس كـلـيـة الـتـمـريـض/ جـامـعـة بـابـل - جزء مـن مـتـطـلـبـات نـيـل درجـة الـدكتوراه - فـلـسـفـة فـي الـتـمـريـض

مـن قـبـل

وليد علي ارميح

بأشراف

الاستاذ الدكتور حسن علوان بيعي

حزيران 2022 ميلادية **ذو القعدة 1444هجرية**