

Acknowledgment

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Contents

Subject	Page No.
List of Tables	I
List of Figures	II
List of Abbreviation	III
Abstract	IV
Introduction and aim of the study	1
Review of literature	
I. Sexuality	6
II. Cancer & chemotherapy	24
III. Role of the oncology nurse regarding women sexuality	51
Subjects and Methods	62
Results	70
Discussion	81
Conclusion	92
Recommendation	93
Summary	94
References	98
Appendices	—
Arabic summary	—

List of Tables

Table No.	Title	Page No.
1	Distributions of socio-demographic characteristics	71
2	Distributions of medical history characteristics	72
3	Distributions of system support characteristics	73
4	Distributions of FSFI's domains	75
5	Relation between FSFI's total score and demographic characteristics	76
6	Relation between FSFI's total score and medical history	78
7	Relation between FSFI's total score and system support	79
8	Correlation between FSFI's total score and chemotherapy duration	80

List of Figures

Figure No.	Title	Page No.
Figures of review		
1	Linear Model	12
2	Circular Model	13
3	Non-linear Model	14
4	Causes of female sexual dysfunction	21
5	Classification of female sexual dysfunction	23
6	Number of cancer cases & deaths worldwide	26
7	PLISSIT Model	56
8	BETTER Model	57
9	ALARM Model	58
Figures of results		
1	Percentage distributions of FSFI's total score	74

List of Abbreviations

Abb.	Full term
ASCO	American Society of Clinical Oncology
FSFI	Female Sexual Function Index
HBV	Hepatitis B Virus
HPV	Human Papilloma Virus
PAP	Papanicolaou's smear
UV	Ultra violet
WHO	World Health Organization

Abstract

The aim of this study was to assess the influence of chemotherapy on women's sexuality. **Design:** A descriptive study. **Setting:** The study was conducted at Radiation Oncology & Nuclear Medicine Center - Ain Shams University. **Sample:** (106) women who had a cancer diagnosis and received chemotherapy. **Data collection tools:** Structured interviewing questionnaire sheet and Female Sexual Function Index. **Result:** more than half of the sample (53.8%) are at age categories (36-45), (39.6%) of them had breast cancer, (45.3%) of them underwent chemotherapy for more than 6months, (68.9%) of them not had sex, and the majority of them had Sexual dysfunction related to chemotherapy. Moreover, there was statistically significant relation between FSFI and chemotherapy duration. **Conclusion:** significant sexual dysfunction in women after treatment with chemotherapy. **Recommendation:** providing guidelines, programs and counseling regarding sexual health is becoming mandatory in the oncology units in order to improve sexual life of women with cancer and under chemotherapy.

Keywords: Cancer, Chemotherapy, Sexual Dysfunction, Female Sexual Function Index (FSFI).

Introduction

Cancer is a disease which occurs when changes in a group of normal cells within the body lead to uncontrolled growth causing a lump called a tumor; this is true of all cancers except leukemia (cancer of the blood). If left untreated, tumors can grow and spread into the surrounding normal tissue, or to other parts of the body via the bloodstream and lymphatic systems, and can affect the digestive, nervous and circulatory systems **(National Cancer Institute, 2013)**.

Cancer occurrence could be associated with various environmental, social, cultural, life-styles, hormonal and genetic factors. In addition smoking, reduced physical activity and consumption of highly processed and calorie-rich food are the major causes of cancer **(Javed; et al., 2011)**.

Cancer can be treated by surgery, chemotherapy, radiation therapy, hormonal therapy and immunotherapy. The choice of therapy depends upon the location and grade of the tumor and the stage of the disease, as well as the general state of the patient status **(Jafri and Mills, 2011)**.

Chemotherapy is the use of anti-cancer drugs to treat cancer. It can stop the growth of a tumor and kill cancer

cells that have spread to other parts of the body. Chemotherapy may also be used to reduce the risk of recurrence, and to shrink the size of a tumor to reduce cancer-related symptoms **(American Cancer Society, 2016)**.

Chemotherapy works on active cells; cancer active cells and healthy active cells. Side effects happen when chemotherapy damages healthy cells such as fatigue, nausea, hair loss vomiting, Neutropenia, sexual dysfunction and even death may also occur in severe cases **(Christian, 2015)**.

Chemotherapy can cause a variety of sexual changes. Some patients experience changes in all areas (desire, arousal, orgasm, resolution), but others experience none. The most common sexual change for cancer patients is an overall loss of desire. For women, vaginal dryness and pain with sexual activity are frequent. Most women are still able to have an orgasm even if cancer treatment interferes with vaginal lubrication. It is common for patients to need more time or stimulation to reach orgasm **(Jyoti, 2015)**.

Sex is a motive force bringing a man and a woman into intimate contact. Sexuality is a central aspect of being human throughout life and encompasses sex, gender

identities and roles, sexual orientation, eroticism, pleasure, intimacy, and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships. Sexuality is influenced by the interaction of biological, psychological, social, economic, political, cultural, ethical, legal, historical, religious, and spiritual factors. Desire, arousal, and orgasm are the three principle stages of the sexual response cycle **(Rao and Anil, 2015)**.

Receiving a cancer diagnosis and experiencing the effects of antineoplastic therapies can have a devastating effect on a person's emotional, physical, and psychological well-being and a significant negative effect on sexual desire and function. Oncology nurses are the ideal healthcare professionals to assess the sexual health status of their patients and to intervene to sensitively address sexuality issues. Using communication tools can help nurses gain confidence in their abilities to address sexuality concerns in an effective and comfortable manner and to provide patients with useful information and insights **(Kaplan and Pacelli, 2011)**.

Significance of the study

A great number of women have a history of cancer, and the number is expected to increase with time. This has prompted an appreciation of the quality of life for survivors. Women treated for cancer identify gynecologic issues as a major concern for both general health and the negative impact on sexual function that follow the cancer diagnosis and subsequent treatment.

In Egypt, according to Radiation Oncology & Nuclear Medicine Center - Ain Shams University in 2014, women who have a cancer diagnosis and treated with chemotherapy are estimated 1062 cases.

Hence the researcher want to examine the influence of chemotherapy on women's sexuality, and discuss some of the major sexual health issues of women who have a cancer diagnosis and been subsequently treated.

Aim of the Study

The main aim of the current study is to assess the influence of chemotherapy on women's sexuality.

Research Question

The current study will answer the following question:

- I. What is the influence of chemotherapy on women's sexuality?

Review of Literature

I. Sexuality

The physiology of the human sexual response

Sexuality is much more than body parts and sex, it includes our gender identity (the core sense that we are female or male), gender role (the idea of how we should behave because we are a female or male), intimacy, touch, love, compassion, joy, sorrow, sexual orientation, feeling about our bodies “body image”, it also include sexual experiences, thoughts, ideas, and fantasies; the way in which the media, family, friends, religion, age, life goals, and self-esteem shape sexual selves. In short, sexuality is an integral part of who we are, what we believe, what we feel, and how we respond to others **(Kim & Reay, 2011)**.

Human sexuality is the capacity of humans to have erotic experiences and responses. A person's sexual orientation can influence their sexual interest and attraction for another person. Sexuality may be experienced and expressed in a variety of ways; including thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles, and relationships. These may manifest

themselves in biological, physical, social, emotional or spiritual aspects **(WHO, 2015)**.

The biological and physical aspects of sexuality largely concern the human reproductive functions, including the human sexual response cycle and the basic biological drive that exists in all species. Physical and emotional aspects of sexuality include bonds between individuals that are expressed through profound feelings or physical manifestations of love, trust, and care. Social aspects deal with the effects of human society on one's sexuality, while spirituality concerns an individual's spiritual connection with others. Sexuality also affects and is affected by cultural, ethical, political, legal, moral, philosophical, and religious aspects of life **(WHO, 2015)**.

Human sexuality is the expression of sexual sensation and related intimacy between human beings. Psychologically, sexuality is the means to express the fullness of love between a man and a woman. Biologically, it is the means through which a child is conceived and the lineage is passed on to the next generation. Sexuality involves the body, mind, and spirit **(Erwin, 2014)**.

Sexuality is part of what makes us human. Naturally, its fundamental function is to propagate the species. But clearly, sex goes far beyond the powerful evolutionary instinct to procreate. Sex is also about sensual pleasure, Enjoyment, Excitement, Even ecstasy. In addition to the earthly and earthly delights of the flesh--the thrill of physically touching and being touched by another warm body, the mounting excitement toward sexual release, the climactic ecstasy of orgasm, and the pulsating, peaceful afterglow of relaxation following orgasm--human sexuality also serves both a psychological and spiritual purpose. **(Stephen, 2014).**

In order to understand sexual dysfunction, it is important to have a solid comprehension of the normal functioning of the male and female reproductive systems. In theory, men and women experience similar physiological changes in response to sexual arousal. However, men are believed to follow a general linear pattern during sexual activity: excitement, arousal, plateau, orgasm, and resolution. Women, on the other hand, are thought to follow a non-linear model of sexual response including emotional intimacy, sexual stimuli, and emotional and physical satisfaction **(Feldhaus-Dahir, 2010).**

The natural cycles of the mature female body

Female genital structures and hormones are involved with sexuality. The hormones that may help a woman feel desire are called estrogens and androgens. Androgens are thought of as “male” hormones, but women’s bodies also make small amounts of them. About half of the androgens in women are made in the adrenal glands. The ovaries make the rest of a woman’s androgen. After a woman goes through natural menopause, the adrenal glands keep making hormones. There’s usually enough androgen even after the ovaries stop making it to feel sexual desire **(Diamond & Wallen, 2011).**

The presence of estrogen induces the cervical mucosa to produce abundant fluid secretions, which in addition to providing lubrication, enhances the survival and mobility of sperm **(Deneris; et al., 2013)**. The presence of estrogen also protects the vaginal tissues by facilitating nitric oxide synthesis, the enzyme involved in the control of vaginal and clitoral arterial blood flow. When estrogen levels decrease, women experience difficulties with vaginal lubrication, low sexual desire, painful intercourse, and/or difficulties with orgasm **(Feldhaus-Dahir, 2010).**