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Table Of Content

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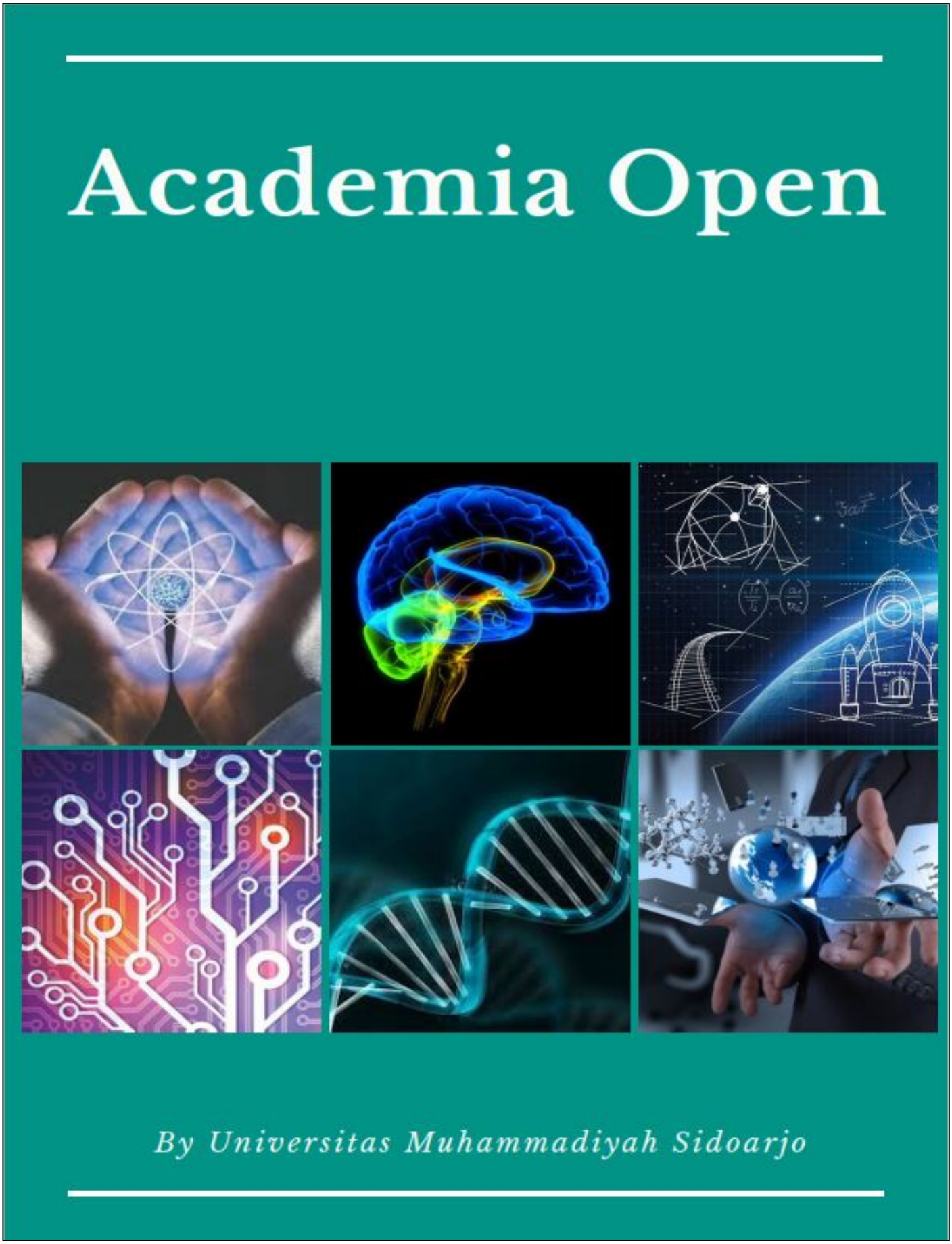

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Conflict of Interest Statement

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Self-efficacy as a Predictor of Self-Management Capacity in Cancer Patients

Efikasi Diri sebagai Prediktor Kapasitas Manajemen Diri pada Pasien Kanker

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Abstract

Background: Self-efficacy, a fundamental concept in psychology, reflects an individual's confidence in their ability to accomplish specific tasks and achieve goals. It significantly influences cancer patients' coping mechanisms, treatment adherence, psychological distress management, and overall well-being. **Specific Background:** While existing literature highlights various aspects of self-efficacy among cancer patients, few studies comprehensively address the relationship between self-efficacy and socio-demographic variables.**Knowledge Gap:** There remains a paucity of research examining the interaction between self-efficacy and demographic characteristics such as age, gender, and educational attainment among cancer patients. **Aims:** This study aims to assess the level of self-efficacy in cancer patients and explore its correlation with socio-demographic characteristics. **Results:** A cross-sectional descriptive design was employed with a purposive sample of 107 cancer patients. The findings revealed that 83% of participants exhibited a high level of self-efficacy, while only 6.50% demonstrated low self-efficacy. A statistically significant association was identified between age and self-efficacy levels (P-value = 0.000). **Novelty:** This research is among the first to highlight the influence of age and chronic illness on self-efficacy in cancer patients while showing no significant relationships with gender, education, or social status. **Implications:** The study underscores the importance of promoting self-efficacy in cancer care, particularly through targeted interventions that consider age and chronic disease status. Enhancing self-efficacy can improve treatment adherence and psychological adjustment, thereby positively impacting the overall health outcomes of cancer patients.

Highlights:

1. 83% of cancer patients had high self-efficacy levels.
2. Age significantly correlates with self-efficacy (P-value = 0.000).
3. Self-efficacy unaffected by gender, education, or social status.

Keywords: self-efficacy, cancer patients, socio-demographic characteristics, treatment adherence, psychological well-being

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Introduction

A collection of over 200 illnesses collectively known as cancer are defined by unchecked and unregulated cell proliferation. It is a serious health issue that may affect people of different ages and races. The word "cancer" refers to a broad range of illnesses with various etiologies that can affect any bodily cell that can elude regulatory limits over its differentiation and proliferation. Two primary dysfunctions identified in the cancer process are improper cellular differentiation and defective cellular proliferation (Bruner, 2023). There are numerous risk factors for cancer, and one most important of them is obesity (Tiryag and Atiyah, 2021).

Cancer patients commonly face symptoms such as pain, fatigue, and sleep disturbances. Additionally, anxiety and depression are prevalent among individuals with cancer. During treatment, 10.3% of patients experience clinically significant levels of anxiety, while those living with cancer for more than two years report anxiety levels of 17.9%, in 2011 and 2013. Depression is also a significant concern, affecting up to 16% of outpatients, 14% of inpatients, and 49% of those receiving palliative care (Lee et al., 2021).

Cancer diagnosis often brings fear, trauma, and thoughts of mortality (Robb et al., 2014). Many patients experience severe stress and worry about an unclear future, which lowers their zest for life. Cancer patients' anxiety and despair are frequently linked to decreased levels of self-efficacy, which impacts their confidence in their capacity for coping. As a coping strategy that affects general well-being, self-efficacy is critical to patients' physical and mental health, quality of life, and behavior while seeking out health information (Werdani and Silab, 2020).

Emotion-focused coping strategies correlate negatively with symptoms and functional aspects of cancer patients' quality of life. This suggests that managing emotional responses has a direct impact on well-being and overall quality of life throughout the cancer journey (Werdani and Silab, 2020).

The ability to effectively cope with the challenges of cancer is crucial for a person's overall experience with the disease. One's belief in their coping abilities, known as self-efficacy expectations, plays a significant role in various aspects of their cancer journey. It influences how individuals approach coping strategies, the effort they invest, and their persistence when faced with obstacles or difficult experiences (Lee et al., 2021).

Numerous research consistently shows that among cancer patients, coping self-efficacy is inversely correlated with both physical and psychological symptoms. Furthermore, studies show a connection between cancer patients' reported quality of life and their level of coping self-efficacy. Therefore, it is believed that a cancer patient's self-efficacy has a significant role in both their general well-being and the quality of life they believe they have left to themselves (Lee et al., 2021). The main research question of this study is whether patients with cancer can manage their chronic disease.

Background

Heart disease is the leading cause of mortality in the United States for both men and women, with cancer coming in second. It holds the top position as the leading cause of death in several states, particularly among Hispanic and Asian Americans, as well as in individuals under the age of 80. Those diagnosed with cancer often endure physical pain, emotional distress, and a reduced quality of life due to symptoms of the disease, diagnostic tests, cancer treatments, and long-term side effects of therapy (Chery et al., 2020).

Cancer encompasses a wide range of disorders distinguished by different causes, symptoms, treatments, and prognoses. Tumors can be classified into two main types: benign tumors that remain localized and do not spread, and malignant tumors which can metastasize, and spread cancer cells from the initial tumor to distant areas of the body. Additionally, there are three major categories of cancer cells: carcinomas, originating from tissue cells and accounting for 90 percent of all cancer cells; sarcomas, originating from connective tissue; and leukemia originating in the blood. It is crucial to note that cancer poses a significant threat, leading to a considerable number of fatalities and complications. (Brunner, 2023)

Included were cancer cases that were registered in 2017 at the Basra Children's Hospital, the Department of Pathology and Forensic Medicine, the Basra Oncology and Hematology Center, and private laboratories. We looked through patient data to find out details like age, gender, place of residence, and kind of cancer. The distribution of incidents across age groups and for various geographic locations were documented as percentages. For patients of varying ages and genders, the mean age was noted. The incidence rates of several cancer kinds were computed per 100,000 people. There were 2,163 confirmed cases of cancer, of which 2,020 (93.4%) were in adults and 143 (6.6%) in children. The majority of adult cancer cases were discovered in females (59%). Adult patients were 51.4 ± 19.6 years old and pediatric patients were 6.4 ± 4.23 years old at the time of diagnosis. As people aged, so did their cancer incidence rate per 100,000 people. Breast cancer, with an incidence rate of 60.64 per 100,000 individuals, was the most common kind of cancer among adult females. Leukemia was the most prevalent cancer in children, whereas bladder, lung, and bronchus tumors were the most common malignancies diagnosed in adult males (Abood et al., 2020).

The study focuses on examining self-efficacy among cancer patients in an oncology center, it also seeks to explore

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the specific needs for support among patients, especially those in advanced stages of cancer, to enhance their self-confidence and management of daily activities and symptoms. This study is particularly important and timely due to the rising prominence of self-efficacy in influencing health-related behaviors and outcomes. As cancer continues to be a significant health challenge globally, understanding the role of self-efficacy in cancer patients is crucial for developing more effective interventions and support mechanisms (Shelton et al., 2020).

The current study shedding light on the role of self-efficacy provides valuable insights into how to enhance patients' intention to adopt health-promoting behaviors, adhere to treatment, and manage the emotional and physical aspects of dealing with cancer. Additionally, by identifying the specific needs of advanced cancer patients, this study can inform the development of tailored support programs and interventions to improve their quality of life (Lai-Kwon et al., 2023).

Methods

The ethics committees of the participating hospitals gave their permission. The participants were made aware that their involvement was completely voluntary and that no personal information would be recorded about them. Participants were assigned identification numbers instead of names, and only the study team had access to the real research data. The study's objectives and participants' rights were thoroughly explained to participants in the cover letter that accompanied the questionnaire. A sealed envelope with a questionnaire packet was delivered to those who consented to participate; returning the completed questionnaire was taken as implicit permission.

Design and setting

Correlational descriptive design was conducted through the period from November 2023 to April 2024. It investigates the relationships within a situation between two or more variables without determining the reason for the relationship. Where there is ambiguity as to whether the variables are related and, if so, how they are related, the researcher can use this design. The researcher, however, believes that the variables are related and tries to detect that relationship and explain it. Correlational designs do not assume that only one variable affects another since it is not always possible to control the independent variable (Polit & Beck, 2008). Targeted was a purposeful sample of (107), who had satisfied the inclusion criteria for the study. Which was composed of (107) patients with cancer. Data were collected using Google Forms and a self-administer questionnaire, which was composed of socio-demographic data form and the Self-Efficacy for Managing Chronic Disease 6-Item Scale (SES6C) (Allam et al., 2019).

Instrument of study

The research instrument is divided into two sections. The first portion comprises socio-demographic details including age, gender, and educational attainment. Part two includes disease history and knowledge development: such as the variables timeline for developing cancer, family history, exercising, exercise period, smoking, type of smoking, follow-up, developing knowledge about cancer, and sources of knowledge. Part three consists of 10 SEM6S items (Allam et al., 2019). That examines the degree to which persons who have chronic illnesses can perform specific tasks. Six items make up the measure; the scale goes from 1 (not at all confident) to 10 (totally confident). The Greater the summed score, the greater the self-effectiveness efficacy level is concluded by computing the mean score across the six items.

Statistical analysis

Data were entered into the IBM-SPSS, version 19 software program, and analyzed by using descriptive and inferential statistics.

1-Descriptive statistics: to describe the socio-demographic

Information, Patient information about his illness, Questions about the

Level of self-efficacy of a cancer patient.

2-Inferential statistics: Spearman’s rho correlation between demographic, disease history knowledge development characteristics, and self-efficacy.

Result and Discussion

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Demographic characteristic		F	%
Sex	Male	46	43
	Female	61	57
Age	20 or less	13	12.1
	21-30	17	15.9
	31-40	14	13.1
	more than 40	63	58.9
Educational level	primary	56	52.3
	secondary school	37	34.6
	College	13	12.1
	master	1	0.9
Social status	married	69	64.5
	single	24	22.4
	divorced	5	4.7
	widow	9	8.4
Total		107	100

Figure 1. *The Demographics and professional characteristics (n = 107)*

The largest percentages of the chosen variables are shown by the values that are underlined in Table (1). whereby women made up over half (57%) of the research group. Of the research sample, 58.9% of the participants were classed as elderly adults, meaning they were above 40 years of age. Additionally, the majority of them (52.3%) just completed elementary school. In terms of the patients' social standing, the majority of research participants (64.5%) were married.

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Timeline for developing cancer		F	%
less than 1 year		60	56.1
1-3 years		32	29.9
4 years and more		15	14
Family history	Yes	41	38.3
	No	66	61.7
Exercising	Yes	52	48.6
	No	55	51.4
Exercise Period	less than 30 min/day	17	32.7
	30-60 min/day	16	30.7
	more than 60 min/day	19	36.6
Smoke	yes	23	21.5
	no	84	78.5
Type of smoking	cigarettes	21	91.3
	Hookah	2	8.7
follow up	Yes	97	90.7
	No	8	8.4
developing knowledge about cancer	yes	59	55.1
	no	48	44.9
Sources of knowledge development	social media	27	45.7
	Solid scientific websites	3	5.08
	doctor	23	38.9
	nurse	2	3.38
	other patient	4	6.77
Total		107	100

Figure 2. ***diseases history and knowledge development*** *(n=107)*

The underlined numbers in Table (2) represent the highest percentages of the selected variables. In which, the majority of the respondents were less than 1 year in the timeline for developing cancer (60%) at the time of data collection. About (61.7%) were having no family history. Furthermore, most of them were not doing exercise (51.4%). Over 60 minutes of exercise per day was the study subjects' preferred duration of exercise representing (36.6%). Most patients were not smokers (78.5%). The highest percentage of the subject's type of smoking was spotted as cigarettes representing (91.3%). (90.7%) of the study, participants were following up on their health state. Patients' developing knowledge about cancer (55.1%), and social media (45.7%) were the most common sources of knowledge.

	N	Minimum	Maximum	Mean	Std. Deviation
mean score	107	.83	6.50	3.9642	1.33157
Valid N (listwise)	107				

Table 1. *Mean of score*

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The largest percentages of the chosen variables are shown by the values that are emphasized in Table (3). Regarding self-efficacy, the majority of study participants (6.50%) were defined as having a lower degree of self-efficacy, whilst the maximum percentage (83%) of the study sample was classified as having a greater level of self-efficacy.

Variables	Correlation coefficient	P. Value
Age	0.367	0.000
Timeline for developing cancer	0.169	0.089
Family history	0.131	0.179
Having Chronic disease	0.220	0.023
Exercising	0.310	0.001
Exercise Period	0.321	0.001
Sex	0.041	0.889
Social status	0.140	0.150
Educational level	0.093	0.339
Follow up	0.061	0.086
Smoking	0.014	0.889
Knowledge development	0.154	0.113
Source of knowledge	0.156	0.109

Table 2. *Spearman's rho correlation between demographic, disease history and knowledge development characteristics and self-efficacy*

Table (4) shows that there are strong statistically significant association between the subject's age (P. Value = 0.000), timeline for developing cancer (P. Value = 0.089), having chronic disease (P. Value = 0.023), exercising (P. Value = 0.001), exercise period (P. Value = 0.001), follow up (P. Value = 0.086) and their self-efficacy level. There is no significant statistical association between sex (P. Value = 0.889), social status (P. Value = 0.150), educational level (P. Value = 0.339), smoking (P. Value = 0.889), knowledge development (P. Value = 0.113), source of knowledge (P. Value = 0.109) and self-efficacy.

Discussion

Self-efficacy is an important component of achieving good health status and well-being. Many studies have presented the aforementioned complex concept trying to address its basic pillars (Nuraini, Intan, Gayatri1 & Afriyani, 2023; Huang et al., 2021; Chaco´ n et al., 2021; Werdani, Silab, 2020; Masmooi, Khatiban, Varshoie & Soltanian, 2022; Narimani, Matin, Hosseini, zarehoseinzade & Motamedi, 2021). However, none of the afore-cited articles have examined all the related variables. For example, some studies have focused on the relationship between the self-efficacy of cancer patients and COVID-19 (Narimani, Matin, Hosseini, zarehoseinzade & Motamedi, 2021; Nuraini, Intan, Gayatri1 & Afriyani, 2023). Other studies have focused on the risk factors (Tabrizi, Alizadeh & Barjasteh, 2017; Huang et al., 2021).

However, this study is the first comprehensive study considering the number of the covered variables. Therefore, this study endeavored to assess The level of efficacy of cancer patients in living with this chronic health condition and adapting to it psychologically and physically to carry out daily vital activities, and to find out the relationship between this efficacy and demographic variables, if it is affected by the age and gender of the patient, or even by the presence of another person in the family who suffers from the same condition health status, and other variables included in this study.

According to Table 1's findings, the bulk of research participants were over 40, accounting for (58.9%) of the sample. Studies conducted by Nuraini, Intan, Gayatri1 & Afriyani (2023) provide evidence for this conclusion. They discovered that the largest proportion of research participants (52.3%) were over 45 years old (Huang et al., 2021), also found that the highest percent of study participants (76.2 %) were more than 45 years old, (Chaco´ n et al., 2021) found that the age mean of study participant (50.5%). In research that includes adult and adolescent cancer patients, the results often show that the largest group of research participants are over 40 or over 45 years old, and this certainly indicates that this age group among adults is at greater risk of contracting cancer and also, the period for their treatment is often longer.

Women made up (57%) of the research sample in this investigation. According to other research, women made up the largest proportion of responders (65.4%) (Onyedibe, Ugwu, Nnadozie & Onu, 2021), (65%) (Schmidt et al., 2022) and (76 %) (Werdani, Silab, 2020). While, in some other studies the highest percentage of respondents were male, such as (56%) (Masmooi, Khatiban, Varshoie & Soltanian, 2022), (53.1%) (Huang et al., 2021), and (54.5 %) (Narimani, Matin, Hosseini, zarehoseinzade & Motamedi, 2021). The difference in the proportions of females and males from one research to another depends on the method of selecting the sample. In this current research, selecting samples only required the patient's consent to interview to participate in the study, regardless of gender,

and given that females were the group most prevalent in the oncology center, a higher percentage of females was obtained in the study results. Thus, the results vary according to the method of each research.

In terms of educational attainment, the survey's conclusions showed that 52.3% of the study sample was in elementary school. Another study conducted among 109 patients with cancer, found that most of them (about 39 participants) were in a low level of education (Chirico et al., 2017). And there were (46.7%) of illiterate cancer patients in the study that has been done by (El-Amir et al., 2023). On the other hand (El-Amir et al., 2023) found that most of the participants of the study were academic (62%). The percentages for the level of education vary from one study to another according to the level of cultural awareness of the region from which the study sample was chosen.

Regarding social status, most of the study sample were married (64.5%). The study results supported, (Onyedibe, Ugwu, Nnadozie & Onu, 2021) about (81.3 %) of the study sample were married, (Nuraini, Intan, Gayatri1 & Afriyani, 2023) about (91.6 %) married and (Schmidt et al., 2023) about (80 %) of the study sample were with a partner. Most of the studies that have been conducted on cancer patients, in addition to our research, stated that the largest percentage of cancer patients are married, and this is due to the physiological and physical changes that occur to the human body after a sexual relationship, as well as the increase in the risk of exposure to some transmissible diseases that cause cancer in its complications, this is according to (Crocetto et al., 2021) the findings suggest that certain sexual behaviors may impact the risk of developing prostate cancer, while HPV is a significant factor in penile cancers, and (Mekonnen & Mittiku, 2023) early sexual activity plays a role in the development of cervical cancer, contradictory findings exist in the literature, but this review of recent studies suggests that there is an association between early sexual debut and an increased risk of cervical cancer.

According to (Table 2) which is related to disease history and knowledge development characteristics, more than half percent of study participants (56.1%) were less than 1 year into the timeline for developing cancer. Another study (Maulida, Muharyani, Idriansari & Adhisty, 2023) found that (70 %) of study participants were less than 1 year old in the cancer diagnosis. This result often varies between studies, depending on the time of research the patient’s condition, and the duration of their cancer at that time.

Regarding family history, most of the study sample had no family history (61.7%). Concerning exercising, most of the study subjects were not doing exercise (51.4%). According to the report, the largest proportion of participants exercise for more than 60 minutes each day (36.6%). One smoking-related feature that this study has emphasized is that, whereas (78.5%) of study participants did not smoke, 19.6% of study responders did. According to the study's findings, 90.7% of participants were improving their overall health. The majority of research participants (55.1%) stated that they try to increase their understanding of cancer. They cited a variety of resources for personal growth, with social media (45.7%) and physicians (38.9%) being the most often cited sources of information. Solid scientific websites (5.08%), nurses (3.38%), and other patients (6.77%) were fewer common sources. After searching extensively for previous studies supporting these results, no research was found that mentioned these variables in its results, and it is significant to note that the current study is the first to deal with the factors stated above, which distinguishes its findings in terms of identifying fresh gaps that require appropriate attention.

Table 3 indicates that, about self-efficacy, the majority of study participants (6.50%) were categorized as having a lower degree of self-efficacy, whereas over two-thirds (83%) of the study sample were classified as having a higher level. These results were in line with those of (Suryani, Nuraini1, Gayatri & Milanti, 2023) who found that a high degree of self-efficacy was possessed by over half (54.6%) of the research participants. Likewise, in another study (Maulida, Muharyani, Idriansari & Adhisty, 2023), there were similar results, as they found that the percentage of high-level self-efficacy patients’ pre-intervention was (0%), but it was (75%) post-intervention, this result shows us that nursing intervention has a significant and effective impact on self-efficacy. Such result’s variance can be explained by: the level of health awareness of the country or region from which the sample was taken, nursing interventions provided to patients and their effectiveness and impact, the age groups that participated in the research, and the provision of opportunities to do activities and exercise for patients.

The relationships between the subject's self-efficacy, sickness history, and knowledge development features are displayed in Table 4. The study's findings showed no statistically significant correlation between the subjects' sex, social position, educational attainment, smoking habit, and their degree of self-efficacy, source of information, and knowledge development. The results of this study also showed a strong correlation between age, the time frame for developing cancer, the presence of a chronic illness, activity, duration of exercise, follow-up, and self-efficacy.

Conclusion

Previous studies were searched to support this result, but we were not able to find research that mentioned the association between self-efficacy and demographic variables. These results show us that the self-efficacy of the cancer patient and adaptation to the new health condition after getting cancer has no relationship with social status and is not affected by the patient’s gender. Likewise, smoking and educational level, do not interfere with self-efficacy, but rather self-efficacy needs to be with a high level of energy for endurance and adaptation, as well as patience, all of which are related to the patient’s age and the chronic diseases that may be present. Also following up on the health condition and performing exercises and daily activities are very important for this

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adaptation and are closely related to the level of self-reliance and independence.

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