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KNOWLEDGE, ATTITUDE AND PRACTICES REGARDING CANCER DIAGNOSIS DISCLOSURE AMONG PHYSICIANS AND RESIDENTS AT UNIVERSITY TEACHING HOSPITAL OF KIGALI RWANDA

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Abstract: **Cancer refers to any one of a large number of diseases characterized by the development of abnormal cells that divide uncontrollably and have the ability to infiltrate and destroy normal body tissue. Cancer disclosure is the process of informing patients and their family members about the cancer diagnosis, prognosis, treatment plan and possible side effects. Disclosing the diagnosis to patients and family contributes positively to the therapeutic process, but when poorly delivered, it can be a source of distress and anxiety, which has a negative impact on patient care. The purpose of this cross-sectional study was to assess the level of knowledge, attitude and current practices regarding cancer disclosure among physicians and residents at CHUK. The present study is based on ethical theory as the one that guide physicians to value the rules, outcomes of disclosure and the virtues that clinicians must possess. The results of this study would highlight the level of knowledge, the attitude and the current practices of physicians and residents regarding cancer disclosure in order to provide recommendations that will be used to improve patient health care. A purposive and census sample of 160 physicians and residents was considered, but only 141 respondents participated. Data was collected through distribution of self-administered questionnaire. Data was analyzed using Microsoft Office Excel 2013 software and the SPSS 21.0 statistical package. Descriptive and inferential statistics were run to address research questions. Descriptive statistics included frequencies and percentages and were computed to describe participants' demographic characteristics and attributes. Inferential statistics was used to determine factors associated with practices regarding cancer diagnosis disclosure; and they comprised Chi-square, bivariate and multiple logistic regression analysis. Adjusted odds ratios were computed to examine the strength of the association of every risk factor to practices regarding cancer diagnosis disclosure. A p-value of ≤0.05 was considered as statistical significance. Results indicate that 22% of the participants had high level of knowledge and 78% of them had low level. A big proportion of the respondents (77%) agreed to the principles of the SPIKES protocol for braking bad news and 23% of them partially agreed. The current cancer diagnosis disclosure practices are poor; 47% of the participants have good practices and 53% of them have poor practices. Two variables were statistically significantly associated with cancer diagnosis disclosure practices; years of experience (AOR 2.5, 95% CI 1.43-8.85, p<0.05) and knowledge regarding cancer diagnosis disclosure (AOR 2.8, 95% CI 1.04-7.36, p<0.05). The level of knowledge regarding cancer diagnosis disclosure among physicians and residents practicing in CHUK was low. The majority**

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of physicians and residents practicing at CHUK agreed with the principles of the SPIKES protocol for breaking bad news. The current cancer diagnosis disclosure practices were poor. To fill the gap in knowledge and practices, physicians and residents practicing at CHUK should be trained and updated about cancer diagnosis disclosure knowledge and skills.

Keywords: **Cancer disclosure, Physician knowledge, PIKES protocol, Patient communication, CHUK practices.**

1. INTRODUCTION

1.1 Background of the Study

Cancer is one of the leading causes of death and a major obstacle to improved life expectancy in every country in the world (Bray *et al*., 2021). According to World Health Organization (WHO, 2019), cancer was the first or second leading cause of death before the age of 70 in 112 out of 183 countries, and the third or fourth leading cause of death in 23 other countries (Sung *et al*., 2021). An estimated 752,000 new cancer cases (4% of the global total) and 506,000 cancer deaths occurred in sub-Saharan Africa in 2018(Okunromade & Adhikari, 2022).

Rwanda is also facing the problem of cancer, where GLOBOCAN estimated in 2018 a total of 10,704 cases with 7662 deaths; and health care is predominantly provided by public hospitals, and the private health care sector is in the process of emerging (Rubagumya *et al*., 2020).

Being diagnosed with a life-threatening disease as cancer, often imposes a crisis on patients; and they have to cope with the disease and its treatment. They also have to deal with questions about the meaning of life, death, an uncertain future and negative emotions related to the cancer diagnosis, which can diminish their quality of life and shorten the prognosis (Zheng *et al*., 2019).

The atrocity of cancer led physicians to avoid disclosing its existence to the patient or family members; and studies have linked these difficulties to a number of reasons, which include lack of knowledge about disclosing bad news, patients' or their families' reactions to the news, the fear of taking away their hope; and the desire to avoid painful discussions that may arise after disclosing the cancer diagnosis (Farhat *et al*., 2015).

1.2 Problem Statement

Communication between doctors, patients and their families is a fundamental aspect of cancer care, particularly when it comes to disclose the diagnosis. Breaking bad news to patients with cancer and their families is a complex skill because, in addition to the verbal component, it also requires the ability to recognize and respond to patients' emotions, to manage the stress that the bad news generates while being able to involve the patient in all decisions, and to maintain hope where there is none (Minlekalew, 2018).

The disclosure process has been shown to have many benefits for cancer patients, such as improved pain management, reduced anxiety and depression, and improved cooperation and adherence to treatment protocols. The same process of disclosure has also been proven to cause anxiety and distress, increasing the psychological burden on patients and healthcare providers, leading healthcare professionals to avoid such disclosure (Zheng *et al*., 2019).

The knowledge and positive attitude of the health care provider in breaking the bad news of cancer diagnosis to patients and their families has been shown to be one of the important factors contributing to acceptance and facilitating the cancer treatment process. Unfortunately, Farhat *et al*. (2015) found that many physicians had limited knowledge about disclosing cancer diagnosis.

According to a study conducted in Lebanon, the oncologist's compassion and communication with patients considerably affected their emotional state, and certain gaps in the communication skills of oncologists required standardized training courses to improve the process of disclosing the cancer condition (Temraz *et al*., 2019).

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of this study was to assess the level of knowledge, attitude and practices regarding cancer diagnosis disclosure among physicians and residents at CHUK.

1.3.2 Specific objectives

i. To assess the level of knowledge regarding cancer diagnosis disclosure among physicians and residents at CHUK

ii. To examine the attitude toward cancer diagnosis disclosure among physicians and residents at CHUK

iii. To explore current cancer diagnosis disclosure practices among physicians and residents at CHUK

iv. To identify factors associated with cancer diagnosis disclosure practices among physicians and residents at CHUK

1.4 Research Questions

The research questions that guided this study were the following:

i. What is the level of knowledge regarding cancer diagnosis disclosure among physician and residents at CHUK?

ii. What is the attitude toward cancer diagnosis disclosure among physician and residents at CHUK?

iii. What are current cancer diagnosis disclosure practices among physicians and residents at CHUK?

iv. What are factors associated with cancer diagnosis disclosure practices among physicians and residents at CHUK?

2. REVIEW OF RELATED LITERATURE

2.1 Theoretical Literature

2.1.1. Cancer

Cancer is a disease that spans the entire range of human experience. First observed in hominid fossils and human mummies, described in antiquity by Egyptian and then Greek physicians, it has manifested itself throughout human history. Affecting people of all ages, cancer cuts across society, causing suffering on a global scale; and is responsible for one in six deaths, making it the second leading cause of death in the world (Nguyen, 2020).

2.1.2 Burden of cancer

Cancer is a growing health problem worldwide, that could affect everyone. More than 19.3 million (19,300,000) new cancer cases were diagnosed and reported, leading to approximately 10 million deaths in 2020 based on the reported data. The death rates have been increasing every year where in 1990 the rate was estimated at 5.76 million and in 2020 reached 10 million (Chhikara & Parang, 2022).

The WHO estimates that by 2040, this will increase to 29.5 million new cancer diagnoses and 16.5 million cancer-related deaths annually. An incidence of 1,918,030 new cancer cases and 609,360 cancer deaths were projected to occur in the United States (ACS, 2022); and a total of 95,03,710 new cancer cases and 58,09,431 cancer-related deaths in Asia in 2020 have been estimated according to the GLOBOCAN (Huang *et al*., 2022).

2.2. Empirical literature

2.2.1.Objective One: To assess the level of knowledge regarding cancer diagnosis disclosure

Mostafavian and Shaye (2018) conducted a cross-sectional study to evaluate the ability and skills of physicians in delivery bad news to cancer patients on 70 specialist physicians in two hospitals of Mashhad in 2016. Results of this study showed that 81.4% of doctors agreed on giving the bad news in private, 72.9% agreed on giving relative hope to patients, and 67.1% agreed on evaluating patient's knowledge of his/her disease when giving bad news. The results of this study show that the ability of physicians in giving bad news is not enough in some aspects.

2.2.2. Objective Two: To examine the attitude toward cancer diagnosis disclosure

Farhat *et al*. (2015) conducted a cross-sectional study to identify the attitudes of patients, families and friends, nurses, and physicians regarding disclosure of a cancer diagnosis in two major hospitals in Lebanon. The sample included 343 physicians, nurses, and cancer patients. Results indicated that 83% of physicians were in favor of disclosing a cancer diagnosis to their patients and only 14% of the physicians said that they revealed the truth to the patients themselves, with only 9% doing so immediately after confirmation of the diagnosis. Disclosure of a cancer diagnosis was preferred before the start of the treatment by 59% of the patients and immediately after confirmation of the diagnosis by 72% of the physicians.

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2.2.3. Objective Three: To explore current cancer diagnosis disclosure practices

Oliveira *et al*. (2015) conducted a study to investigate physicians' opinions and practice with respect to disclosure of a cancer diagnosis and to explore potential related factor in Coimbra University Hospital Centre in Portugal. A sample of 120 physicians was used. Results revealed that 91.7% of physicians generally disclosed a diagnosis, and 94.2% were of the opinion that the patient knowing the truth about a diagnosis had a positive effect on the doctor–patient relationship. A need for training about communicating with oncology patients was reported by 85.8% of participants. The main factors determining what information to provide to patients were: (1) patient intellectual and cultural level, (2) patient desire to know the truth, and (3) the existence of family.

2.2.4. Objective Four: To identify factors associated with cancer diagnosis disclosure practices

Aghili *et al*. (2017) carried out a study to evaluate factors effective in doctors' telling the truth to their patients among specialists and sub-specialists working in the field of cancer treatment in Tehran, Iran. A sample size of 161 was used, and results revealed that 87.6% of the respondents would tell the truth to their patients, while 12.4% wouldn't do so. They believed that the best person to tell the truth to the patient is the physician or the psychiatrist specialized in this field. Ninety-two percent of physicians felt the need for developing a guideline on educating patients. There was a significant difference between oncologists and non-oncologists in terms of tendency to tell the truth, with non-oncologists showing more tendency.

Most of the doctors preferred to tell the truth to their middle-aged (51–70 years) patients rather than to their younger or older patients.

3. RESEARCH METHODOLOGY

3.3.1. Sample size

This study used total population sample which is 160 physicians and residents. Because the population is small, the researcher decides to work on the entire population, and thus all physicians and residents were included in the study.

Thus, N=160 physicians and residents.

Inclusion criteria for physicians consisted of being employed at the hospital for at least 6 months, being providing direct medical care to patients

Inclusion criteria for residents consisted of being at least in second post graduate year

Exclusion criteria for physicians consisted of being working in non-clinical departments and units.

3.3.2 Sampling Techniques

This study used purposive sampling and census sampling technique. The researcher got the list of all physicians, their contacts (phone number) and their respective working departments from the service of Human Resources. The list of residents and their contacts were gotten from the Clinical Education and Research Division. Then, the researcher contacted each eligible participant via mobile phone after checking inclusion criteria. The researcher and the participant made arrangements on how and when to meet.

4. RESEARCH FINDINGS AND DISCUSSION

4.1 Demographic characteristics of respondents

Questionnaires were used to collect information regarding respondents' sociodemographic characteristics, and this were then arranged according to department, age, sex, marital status, religion, level of education, position, and years of experience. It is shown in the table below:

Table 4.1: Socio-demographic characteristics of the sample

Characteristics	Frequency	Percentage
Department of respondents		
Emergency	20	14
Internal Medicine	22	16
Gynecology & Obstetrics	22	16

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Pediatrics	23		16
Surgery	50		35
Other	4		3
Total		**141**	**100**
Sex of respondents			
Male	103		73
Female	38		27
Total		**141**	**100**
Age of respondents			
Less than 25 years old	2		1.5
Between 25 and 44 years old	113		80
Between 45 and 54 years old	21		15
More than 54 years' old	5		31.5
Total	**141**		**100**
Marital status of respondents			
Single	30		21.5
Married	109		77
Widowed	2		1.5
Total	**141**		**100**
Religion of respondents			
Catholic	73		52
Protestant	50		35
Muslim	4		3
Other	13		9
No religious	1		1
Total	**141**		**100**
Education level of respondents			
Bachelor's Degree	59		42
Masters of Medicine	76		54
PhD	3		2
Other	3		2
Total	**141**		**100**
Position of respondents			
General practitioner	11		8
Resident	48		34
Fellow	10		7
Specialist physician	72		51
Total	**141**		**100**
Years of experience of respondents			
Less than 10 years	80		57
Between 10-20 years	56		40
Between 21-30 years	3		2.1
More than 30 years	2		1
Total	**141**		**100**

Source: Primary data

Results in Table 4.1 indicate that the majority of the participants (35%) were from Surgery department; 73% of them were male and 27% of them were female; concerning their age, the majority (80%) were between 25 and 44 years old, 77% of them were married, 52% of them were Catholic; about the level of education, results showed that it varied between Bachelor's degree to PhD and the over a half (54%) of them were holders of Masters of Medicine and almost half of them (51%) of them were Specialists Physicians; the years of experience varied from less than 10 years to more than 30 years; over a half (57%) of the respondents had less than 10 year of experience.

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4.2. Presentation of findings

Research findings were presented according to the objectives of the study.

4.2.1. Objective one: Level of knowledge regarding cancer diagnosis disclosure among physicians and residents at CHUK

Level of knowledge regarding cancer diagnosis disclosure was assessed using a questionnaire. Result are presented in the table below.

Table 4.2: Level of knowledge regarding cancer diagnosis disclosure

No	Statements	Yes (%)	No (%)
When disclosing cancer diagnosis, I know that			
1	I have to make sure that we are in a private and comfortable setting.	134(95)	7(5)
2	I should involve significant others (relatives, if the patient wants that).	127(90)	14(10)
3	I should ask the patient open-ended questions to find out how he or she perceives their medical situation.	106(75)	35(25)
4	I should communicate in ways that help the patient process the information.	133(94)	8(6)
5	I should use a simple language and avoid medical jargon.	136(96.5)	5(3.5)
6	I should provide information in small amounts, use short sentences, and check periodically for understanding.	93(66)	48(34)
7	I should address the patient's emotions with empathetic attitude and responses.	136(96.5)	5(3.5)
8	I should end disclosing a cancer diagnosis by presenting prognosis, treatment or palliative care options.	131(93)	10(7)
9	After disclosing a cancer diagnosis, I should encourage the patient to express their feelings and clarify their doubts.	110(78)	31(22)
10	I should inform the family that there will be psychological support when necessary.	111(79)	30(21)
	Breaking bad news protocols awareness		
1	SPIKES protocol	21(15)	120(85)
2	ABCD protocol	3(2)	138(98)
3	BREAKS protocol	8(6)	133(94)
I know all of them		8(6)	133(94)
None		107(76)	34(24)

Source: Primary data

Results in Table 4.2 show that when disclosing cancer diagnosis, the majority of respondents (96.5%) of them know that they should use a simple language and avoid medical jargon and that they should address the patient's emotions with empathetic attitude and responses. About breaking bad news protocol, the results showed a low percentage where 15% of respondents affirmed that they were aware of SPIKES protocol and the majority of the respondents (76%) asserted that they were aware of none of the protocols.

The majority of respondents know that, when disclosing cancer diagnosis, they should use a simple language and avoid medical jargon and provide information in small amounts, use short sentences, and check periodically for understanding. Surprisingly, the majority of respondents are not aware of the existing breaking bad news protocols. Delivering bad news

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to patients like cancer diagnosis requires knowledge and skills and it is not simple at all. Lack of knowledge and skills of braking bad news among physician and residents may have destructive consequences on patients, families and physicians themselves.

Table 4.3: Participants' scores of overall knowledge regarding cancer diagnosis disclosure

Overall knowledge score ……./16	Frequency	Percentage
2-5	11	8
6-9	51	36
10-13	68	48
14-17	11	8

Source: Primary data

Results in Table 4.3 show that over 16 score, 8% of the participants scored between 2 and 5, 36% of them scored between 6 and 9, 48% of them scored between 10 and 13, and 8% of them scored between 14 and 17.

Overall level of knowledge regarding cancer diagnosis disclosure

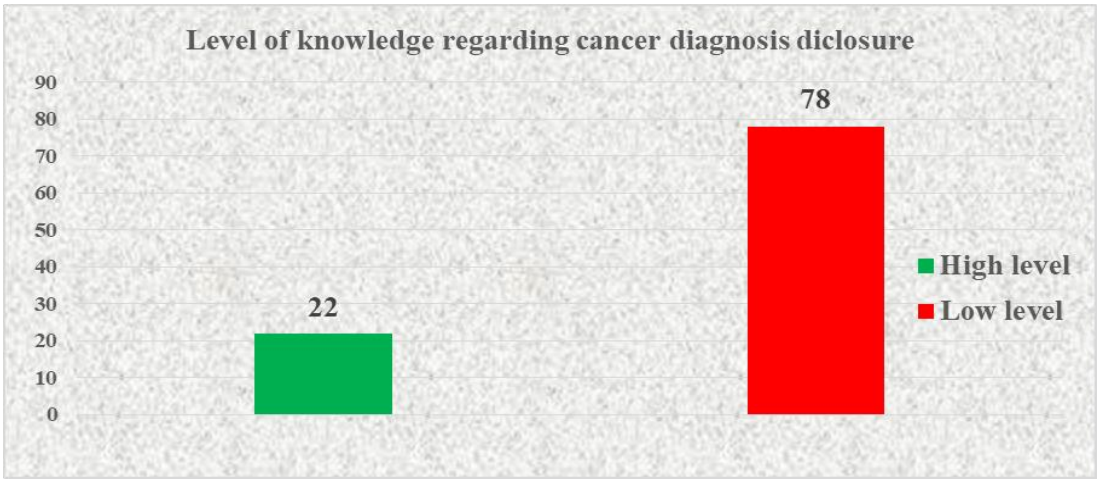

Figure 4. 1: Level of knowledge regarding cancer diagnosis disclosure

The total score for knowledge was 16, the respondent's low score was 2/16 and the high score was 16/16. The knowledge level was classified into two categories; high level and low level; Bloom's cutoff point was set at ≥80% for high level of knowledge (Akresh-Gonzales, 2018; Ashebir *et al.*, 2022). Respondents with score ≥80% were classified as having high level of knowledge and respondents with score <80% were classified as having low level of knowledge. Results in Figure 4.1 indicate that 22% of the participants had high level of knowledge and 78% of them had low level of knowledge regarding cancer diagnosis disclosure.

4.2.2. Objective two: Attitude toward cancer diagnosis disclosure among physicians and residents at CHUK

The attitude toward cancer diagnosis disclosure was assessed using the Breaking Bad News Attitude Scale (BBNAS); a 5 points Likert scale of 15 items. Participants were asked to indicate their degree of agreement to each statement.

Table 4.4: Attitude toward cancer diagnosis disclosure among physicians and residents at CHUK

No	Statement	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1	Patients should be informed about their cancer diagnosis	115(82)	22(15)	4(3)	0(0)	0(0)
2	Patient's family members should be informed of the cancer diagnosis.	57(40)	46(33)	26(19)	9(6)	3(2)

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3	The disclosure of cancer diagnosis should be delivered after a relationship has been established between the patient and the doctor.	76(54)	45(32)	13(9)	5(4)	2(1)
4	A multi-bed room can be used to announce cancer diagnosis to patient.	9(6)	13(9)	24(17)	39(28)	56(40)
5	It is important to determine how much the patient or their family wants to know about cancer diagnosis.	62(44)	55(39)	16(11)	4(3)	4(3)
6	The disclosure of cancer diagnosis should be delivered in same manner to all patients.	15(10)	18(13)	18(13)	45(32)	45(32)
7	Sufficient time must be allocated for announcing cancer diagnosis to patients.	99(70)	34(24)	7(5)	0(0)	1(1)
8	Before disclosing cancer diagnosis, it's a good to find out what patients already knows about theirs conditions.	99(70)	30(21)	9(6.5)	1(1)	2(1.5)
9	Before revealing the diagnosis of cancer, the doctor must give a "warning shot" indicating that bad news is coming.	30(21)	38(27)	31(22)	21(15)	21(15)
10	The cancer diagnosis must be announced in the presence of a support person.	62(44)	50(36)	20(14)	6(4)	3(2)
11	The information provided should be in simple terms and direct.	88(62.5)	36(25.5)	12(8.5)	5(3.5)	0(0)
12	It's important to disclose cancer news all at once and get it over with as quickly as possible.	13(9)	9(6.5)	22(16)	57(40.5)	40(28)
13	Physician should be empathetic and respond to the patient's and their families' emotional reactions.	96(68)	35(25)	5(3.5)	5(3.5)	0(0)
14	Patient's understanding should always be checked before closing the disclosure session.	94(67)	37(26)	8(6)	2(1)	0(0)
15	Physician should ensure that the patient is given a follow up plan before closing the disclosure session.	110(78)	21(15)	7(5)	2(1)	1(1)

Source: Primary data

Results in table 4.4 indicate that the majority (82%) of respondents strongly agree that patients should be informed about their cancer diagnosis; and a very small number (6%) strongly agree that a multi-bed room can be used to announce cancer diagnosis to patient; 70% of participant strongly agree that sufficient time must be allocated for announcing cancer diagnosis to patient, and that physicians have to find out what the patients already know about theirs conditions before disclosing cancer diagnosis; a big proportion(78%) strongly agree that physician should ensure that the patient is given a follow up plan before closing the disclosure session.

A considerable proportion of respondents strongly agree that patients should be informed about their cancer diagnosis and non-negligible proportion (15%) strongly disagree that before revealing the diagnosis of cancer, the doctor must give a "warning shot" indicating that bad news is coming. Communicating bad news is unpleasant experience for both patients and physicians. Having positive attitude towards breaking bad news empowers the physician and it is a key ingredient in developing positive patient-physician relationship.

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Table 4.5: Participants' scores of overall attitudes toward cancer diagnosis disclosure

Overall attitudes score ……./60	Frequency	Percentage
34-38	6	4
39-43	26	18.5
44-48	36	25.5
49-53	51	36
54-59	22	16

Source: Primary data

Result in Table 4.5 indicate that over 60 score, 4% of the participants scored between 34 and 38; 18.5 % of them scored between 39 and 43, 25.5% of them scored between 44 and 48; 36% of them scored between 49 and 53; and 16% of them score between 54 and 59.

Overall attitude towards cancer diagnosis disclosure

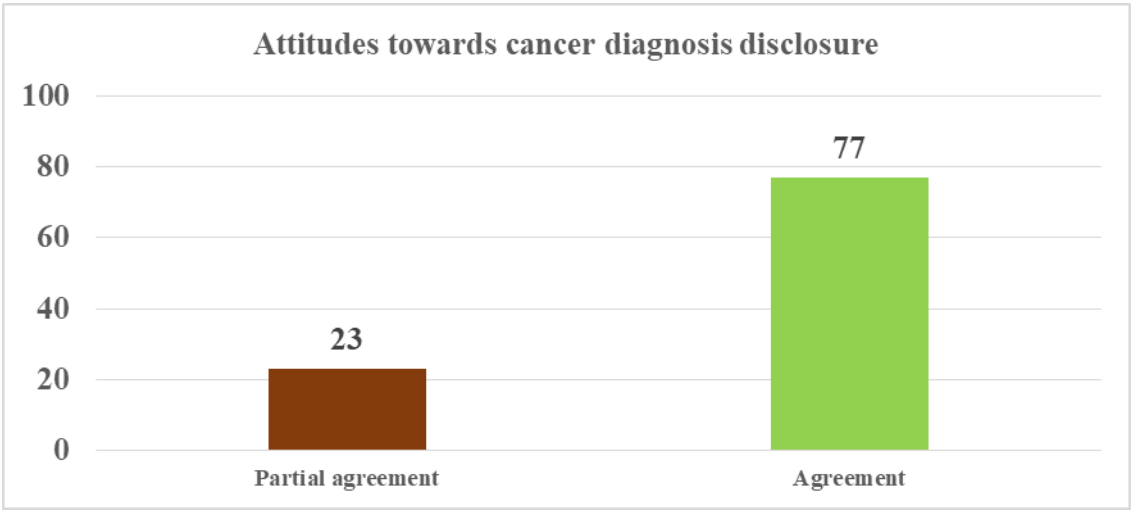

Figure 4. 2: Attitude toward cancer diagnosis disclosure

The total score for attitude questionnaire was 60, the low score was 34/60. The score was transformed into percentage, then attitudes were classified into three categories; disagreement (0-33%), partial agreement (34-66%) and agreement (over 66%) (Dos Santos *et al*., 2021). Results in Figure 4.2 indicate that 77% of the participants agreed with the principles of the SPIKES protocol disclosing cancer diagnosis and 23% of them partial agreed.

4.2.3. Objective Three: Current practices about cancer diagnosis disclosure questionnaire

Current practices about cancer diagnosis disclosure were assessed using a questionnaire developed based on the most popular communication protocols for breaking bad news.

Table 4.6: Practices about cancer diagnosis disclosure questionnaire

No	Statements	Always	Often	Sometimes	Rarely	Never
1	I make sure that we are in a private and comfortable setting.	13(9)	85(60.5)	34(24)	7(5)	2(1.5)
2	I involve significant others (relatives, if the patient wants that).	16(11)	57(40.5)	59(42)	9(6.5)	0(0)

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3	I ask the patient open-ended questions to find out how he or she perceives their medical situation.	8(6)	53(38)	68(48)	9(6)	3(2)
4	I communicate in ways that help the patient process the information	57(40.5)	73(52)	6(4)	5(3.5)	0(0)
5	I use a simple language and avoid medical jargon	50(35.5)	79(56)	5(3.5)	5(3.5)	2(1.5)
6	I do not tell the whole truth to the patients and or relatives	26(18.5)	24(17)	41(29)	40(28.5)	10(7)
7	I provide information in small amounts, use short sentences, and check periodically for understanding.	34(24)	53(38)	34(24)	17(12)	3(2)
8	I address the patient's emotions with empathetic attitude and responses.	37(26)	75(53)	22(16)	5(3.5)	2(1.5)
9	I end disclosing a cancer diagnosis by presenting prognosis, treatment or palliative care options	29(20)	97(69)	13(9)	1(1)	1(1)
10	After disclosing a cancer diagnosis, I encourage the patient to express their feelings and clarify their doubts	13(9)	52(37)	63(45)	8(6)	5(3)

Source: Primary data

Results in Table 4.6 indicate that, when disclosing a cancer diagnosis to the patient, the majority (60.5%) the respondents state that they often make sure that they are in a private and comfortable setting; 18.5% of the respondents declare that they do not tell the whole truth to the patients and or relatives; 56% of participants declare that they often use simple language and avoid medical jargon; 53% of them often address the patient's emotions with empathetic attitude and responses; and 69% declare that they often end cancer disclosure by presenting prognosis, treatment or palliative care options.

The practice which is often done by the majority of the respondents is to end disclosing a cancer diagnosis by presenting prognosis, treatment or palliative care options and a noticeable proportion of the participants rarely do not tell the whole truth to the patients and or relatives. Poorly delivering bad news affects the patient, their family and physician. Patient in general may experience uncontrollable stress and anxiety, and this may result in poor adjustment to the situation associated with reduced health outcomes.

Table 4.7: Participants' scores of overall practices toward cancer diagnosis disclosure

Overall practice score ……./40	Frequency	Percentage
18-21	12	8.5
23-25	19	13.5
26-29	44	31
30-33	41	29
34-37	25	18

Source: Primary data

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Result in Table 4.7 indicate that over 40 score, 8.5% of the participants scored between 18 and 21; 13.5% of them scored between 22 and 25; 31% of them scored between 26 and 29; 29% of them scored between 30 and 33; and 18% of them score between 34 and 37.

Overall practices about cancer diagnosis disclosure

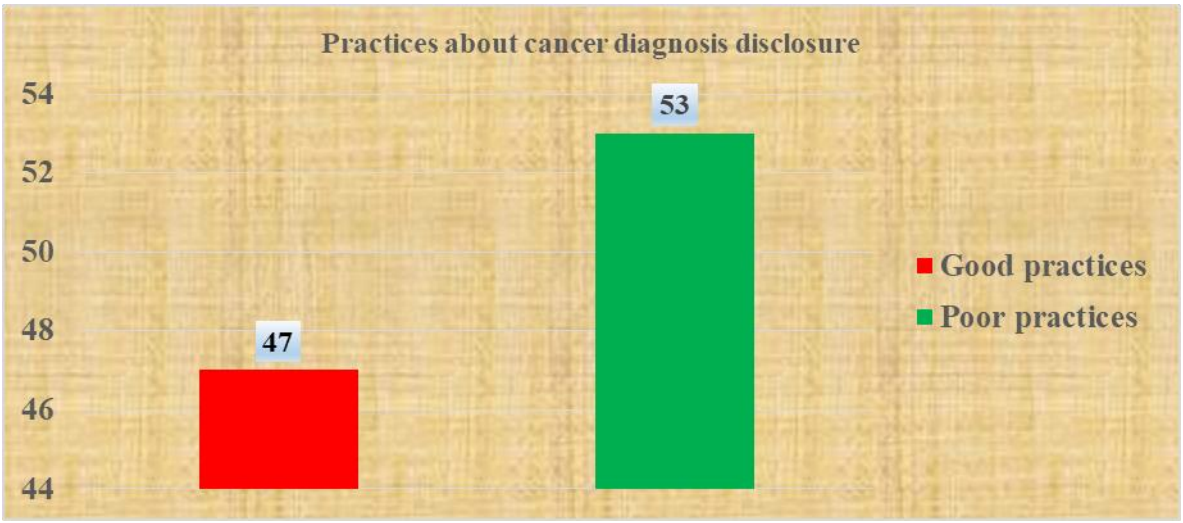

Figure 4. 3: Practices about cancer diagnosis disclosure

The total score for practice questionnaire was 40, the low score was 18/40 and the high score was 35/40**.** The practices level was classified into two categories; good and poor practices; Bloom's cutoff point was set at ≥75% for good practices (Akresh-Gonzales, 2018; Ashebir *et al.*, 2022). Respondents with score ≥75% were classified as good practices and respondents with score <75% were classified as having poor practices. Results in Figure 4.2 indicate that 47% of the participants have good practices and 53% of them have poor practices about cancer diagnosis disclosure.

4.2.4. Objective Four: Factors associated with cancer diagnosis disclosure practices among physicians and residents at CHUK

To examine the factors associated with cancer diagnosis disclosure practices, the researcher performed Chi-square test, bivariate and multivariate logistic regression. Bivariate logistic regression was run for pre-selection of variables to include in multivariate analysis. Variables which showed a significant p-value ($p \leq 0.05$) at bivariate analysis were selected to include in multivariate model.

5. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0. Introduction

This chapter contains a summary of the research findings objective by objective. It draws a conclusion and it makes recommendations. Finally, it gives suggestions for further studies.

5.1. Summary of Findings

The level of knowledge regarding cancer diagnosis disclosure among physicians and residents at CHUK was low. Interestingly, a considerable proportion of physicians and residents had positive attitude towards cancer diagnosis disclosure. But the current cancer diagnosis disclosure practices were poor. Two factors; years of experience and knowledge regarding cancer diagnosis disclosure were found to be associated with cancer diagnosis disclosure practices.

5.1.1. Objective One: the level of knowledge regarding cancer diagnosis disclosure among physicians and residents at CHUK

The research findings showed that physicians with high level of knowledge were those who scored 13 out of 16 or above to the entire 11 questions related to knowledge regarding cancer diagnosis disclosure and its proportion was 22%. Physicians with low level of knowledge were those who scored 12 out of 16 or below to all questions related to knowledge regarding cancer diagnosis disclosure and its proportion was 78%.

5.1.2. Objective Two: the attitude toward cancer diagnosis disclosure among physicians and residents at CHUK

The research finding showed that physicians with agreement attitude regarding cancer diagnosis disclosure were those who scored 40 out of 60 or above to all 15 questions, and its proportion was 77%. Physicians with partial agreement attitude regarding cancer diagnosis disclosure were those who scored 34 to 39 out of 60 to all 15 questions, and its proportion was 23%.

5.1.3. Objective Three: current cancer diagnosis disclosure practices among physicians and residents at CHUK

The current cancer diagnosis disclosure practices among physicians and residents at CHUK were found poor. The research results revealed that physicians with good practice were those who scored 30 out of 40 or above to all questions related to practice and its proportion was 47%. And those with poor practice scored 29 out of 40 or below to all questions, and its proportion was 53%.

5.1.4. Objective Four: factors associated with cancer diagnosis disclosure practices among physicians and residents at CHUK

The two variables (years of experience and knowledge regarding cancer diagnosis disclosure) were found to be associated with cancer diagnosis disclosure practices.

Concerning the years of experience, a statistically significant association between years of experience and cancer diagnosis disclosure practices was found (AOR 2.5, 95% CI 1.43-8.85, $p<0.05$). Physicians and residents with less than 10 years of experience were 2.5 times more likely to have good cancer diagnosis disclosure practices compared to physicians and residents with more than 10 years of experience.

Concerning the knowledge regarding cancer diagnosis disclosure, a statistically significant association between knowledge regarding cancer diagnosis disclosure and cancer diagnosis disclosure practices was observed (AOR 2.8, 95% CI 1.04-7.36, $p<0.05$). Physicians and residents with high level of knowledge regarding cancer diagnosis disclosure were 2.8 times more likely to have good cancer diagnosis disclosure practices compared to physicians and residents with low level of knowledge.

5.2. Conclusions

The purpose of this study was to assess the level of knowledge, attitude and practices regarding cancer diagnosis disclosure among physicians and residents at CHUK.

The problem identified was the low level of knowledge regarding cancer diagnosis disclosure and poor cancer diagnosis disclosure practices. Encouragingly, a noticeable percentage of physicians and residents agreed to the principles of the SPIKES protocol for disclosing cancer diagnosis. The years of experience and knowledge regarding cancer diagnosis disclosure were factors associated with cancer diagnosis disclosure practices.

This work provides reasonable evidence that could be of significant benefit for health policy makers to consider interventions aiming at increasing the level of knowledge and improving practices regarding cancer diagnosis disclosure at CHUK.

5.3. Recommendations

Based on the low level of knowledge and poor cancer diagnosis disclosure practices among physicians and residents at CHUK, the researcher formulated the following recommendations:

The University Teaching Hospital of Kigali should organize training and update knowledge and skills on standardized breaking bad news protocols.

Physicians and residents should adhere to the standardized breaking bad news protocols, that will contribute to good standards of care.

The ministry of education in collaboration with the ministry of health should incorporate in the curriculum of health sciences, the training regarding disclosing cancer diagnosis.

5.4. Suggestions for further study

This study is not exhaustive. The researcher would like to formulate some suggestions to future researchers to further build on this work and explore other related themes. Future research is needed to address the following topics:

Perceptions of cancer diagnosis disclosure practices among patients and family caregivers,

Barriers to cancer diagnosis disclosure practices among healthcare professionals, Preferences of patients and relatives on disclosure and nondisclosure of the cancer diagnosis.

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