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Frequency Distribution of Oncology Patients Who Come to Emergency Department at H. Adam Malik Hospital, Medan

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ABSTRACT

A multidisciplinary approach is needed to comprehensively evaluate cancer patient's condition and understanding patient demographic characteristics can improve health care by adapting to each patient's needs. This research is a descriptive observational study with a cross-sectional study design conducted at the Haji Adam Malik General Hospital in Medan on oncology patients who met the inclusion criteria. Data with a numerical measuring scale will be presented in mean+standard deviation (SD) and data with a categorical measuring scale will be presented in frequencies and percentages. The results showed that majority of patients were in 46–59 year age group as much as 32 patients (37.2%) and 58 patients (67.4%) were female. The highest level of education was found in 26 patients (30.2%) as bachelor, and 45 patients (52.3%) lived in Medan City. Most patients came to be treated at the surgical installation as many as 50 patients (25.6%). The research results found that majority of patients are in the age group 46-59 years, female, bachelor, domicile in Medan and are treated in surgical installation.

Keyword: Emergency department, Multidisciplinary approach, Oncology

1. Introduction

Approximately 4% of all adult emergency department (ED) visits in the United States are for cancer-related complaints [1]. A multidisciplinary approach involving oncologists, radiologists, and other medical personnel is needed to comprehensively evaluate the patient's condition.2 Oncology patients can be found in various age groups, gender, and ethnic background [3,4].

Oncology patients may experience feelings of anxiety, fear, and depression due to a life-altering diagnosis. Psychological support and counseling are very important to help patients overcome these emotional changes and maintain their mental health throughout treatment course [5].

The characteristics of oncology patients are also reflected in treatment decisions. Each patient has personal preferences, beliefs, and values that may influence their choices regarding treatment. Some patients may choose an aggressive medical approach, while others may choose more holistic care [6,7]. Understanding patient demographic characteristics can improve health care by tailoring each patient's needs and providing effective and supportive care throughout the patient's cancer journey [4,5].

The distribution of oncology patients visiting the ED reflects the complexity of cancer management and the challenges of providing appropriate care in emergency situations. It is important to continue to develop better strategies to address this problem, including improving coordination between cancer care and the medical team in the ED. Therefore, this research aims to describe the distribution of oncology patients who come to the emergency room at H. Adam Malik Hospital, Medan.

2. Method
Study Design and Data Sources
This research is a descriptive observational study with a cross-sectional study design conducted at the Haji Adam Malik General Hospital, Medan. After obtaining permission from the ethics committee, researchers can carry out data collection. Data was taken from medical records in July-August 2023 to trace number of oncology patients admitted to emergency room at H. Adam Malik Hospital Medan based on age, education level and patient domicile.

Study Population
This research sample was taken based on total sampling technique. The research sample was all oncology patients who met the inclusion criteria, namely oncology patients who were admitted to the emergency room at H. Adam Malik Hospital Medan and patients who came either by referral from an outside hospital or came by themselves, and did not go home at their own request; and did not meet the exclusion criteria, namely oncology patients who were admitted repeatedly and patients who died in the emergency room (ER).

Statistical Analysis
Descriptive statistical analysis was used for demographic data. Data with a numerical measuring scale will be presented in mean+standard deviation (SD) and data with a categorical measuring scale will be presented in frequencies and percentages.

3. Result and Discussion
Medical records for the period July-August 2023 with a total sample of 86 patients. The frequency distribution of research respondents was 86 patients with an average age of 44.65$\pm$15,308 years which the youngest age was 1 year old and the oldest was 73 years old.

Table 1. Frequency Distribution of Research Respondents (n=86)

Characteristics		
Age (years old)		
Mean$\pm$SD (Min-Max)	44.65$\pm$15.308 (1-73)	
Age Category (years old)		
0-5	2	2.3%
6-18	2	2.3%
19-30	12	14%
31-45	28	32.6%
46-59	32	37.2%
>60	10	11.6%
Gender (n, %)		
Male	28	32.6%
Female	58	67.4%
Education (n, %)		
Uneducation	5	5.8%
Elementary School	6	7%
Junior High School	20	23.3%
Senior High School	20	23.3%
Diploma	9	10.5%
Bachelor	26	30.2%
Domicili (n, %)		
Asahan Regency	2	2.3%
Batubara Regency	1	1.2%
Deli Serdang Regency	13	15.1%
Medan City	45	52.3%
Binjai City	6	7%
Pematang Siantar City	1	1.2%

Tebing Tinggi City	2	2.3%
Langkat Regency	3	3.5%
Serdang Bedagai Regency	3	3.5%
Simalungun Regency	10	11.6%
Installation (n, %)		
Surgery	50	58.1%
Obstetric and Gynecology	22	25.6%
ENT	10	11.6%
Pediatric	2	2.3%
Internist	2	2.3%

Regarding age categories, the age group 46-59 years as much as 32 patients (37.2%), then 31-45 years as much as 28 patients (32.6%), 19-30 years as much as 12 patients (14%), over 60 years as much as 10 patients (11.6%), and the age groups 0-5 years and 6-18 years with two patients each (2.3%) (Figure 1).
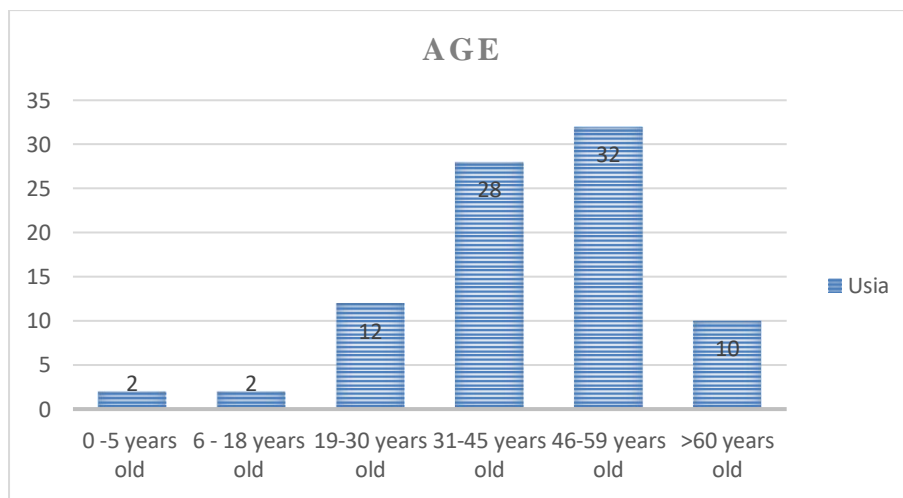

Figure 1. Sample Distribution by Age Category

The most common gender was female in 58 patients (67.4%), and male in 28 patients (32.6%) (Figure 2). Bachelor's education level was the most common, namely 26 patients (30.2%), junior and senior high school with 20 patients each (23%), diploma with 9 patients (10.5%), elementary school with six patients (7%) and uneducational as many as five patients (5.8%) (Figure 3).

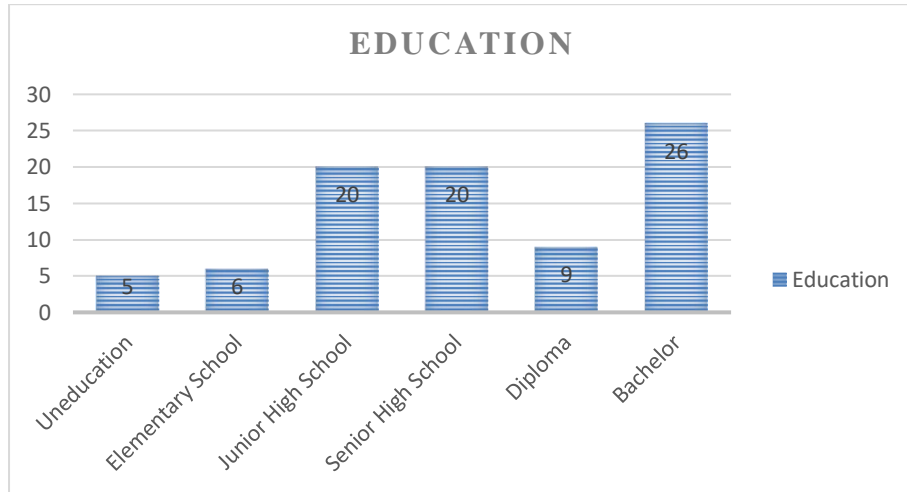Figure 2. Sample Distribution by Gender

Figure 3. Sample Distribution by Education Level

Regarding domicile, 45 patients (52.3%) lived in Medan City, then 13 patients (15.1%) in Deli Serdang Regency, as many as 10 patients (11.6%) from Simalungun Regency, six patients (7%) from Binjai City, then Langkat and Serdang Bedagai Regency each had three patients (3.5%). Patients who come from Asahan Regency and Tebing Tinggi City accounted for two patients (2.3%), then patients from Batubara Regency and Pematang Siantar City had one patient each (1.2%) (Figure 4).
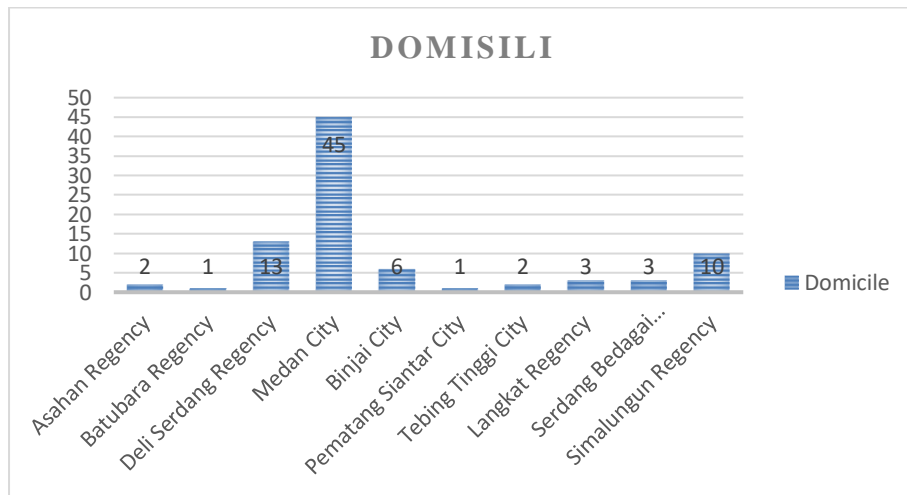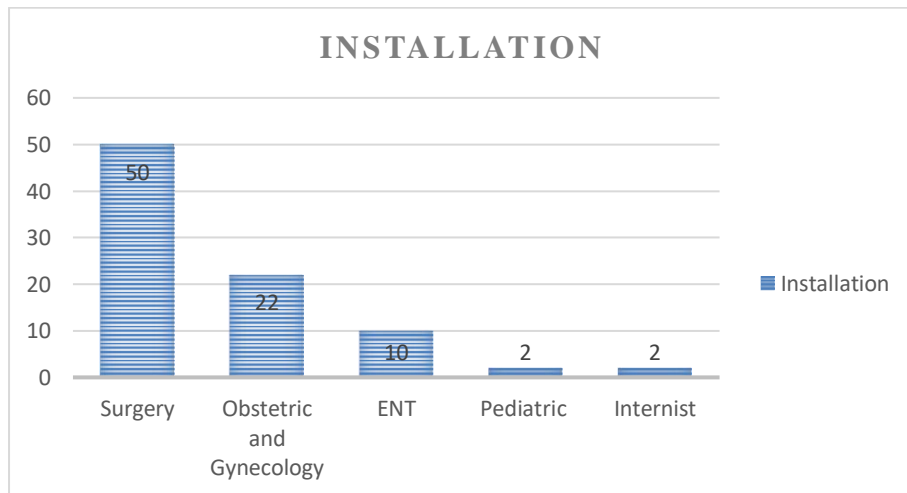

Figure 4. Sample Distribution by Domicile

Figure 5. Sample Distribution by Installation
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Discussion

The number of cancer patients treated in emergency departments continues to increase every day. There are several possible causes for this increase. The increase in the standard of living has resulted in an increase of people aged over 65 years along with an increase incidence of oncological diseases which depend on age [8]. Along with the improvement in quality of life, there has also been an increase in cancer prevalence along with the increase in the population aged 60 years and over. However, with improvements in patient care, the extension of cancer patient survival has resulted in increase cancer patients. According to World Health Organization (WHO) data, cancer is the second most common cause of death worldwide and is estimated to be responsible for 9.6 million deaths in 2018 [9,10].

Cancer is currently the second leading cause of death in worldwide. Population aging, particularly in western countries, has been recognized as a major determinant of the increase in cancer incidence in recent decades. Aging is accompanied by degenerative comorbidities and there is evidence that the comorbidity index is an independent predictor of cancer patient attendance in the ED [11]. Additionally, advances in diagnostic equipment, cancer treatment, and supportive care over the past two decades have resulted in significant improvements in survival rates. Therefore, cancer patients face a longer disease course that is often characterized by treatment and acute disease-related complications that require ED use [12].

Among the important factors are; 1) cancer hospitalization rate, 2) length of stay in the ER and hospitalization, 3) death rate both in the ER and upon admission. The data clearly show that the preferential pathway for cancer patients results in substantial and statistically significant improvements in nearly all quality parameters analyzed. Specifically, there was a significant decrease in hospitalization rates in 2014 to 2015 which was likely due to appropriate management of cancer patients and avoidance of unnecessary hospitalizations. Moreover, specialist-oriented treatment of these patients should be considered the most significant contributor to mortality reduction found in previous studies [13,14].

Regarding frequency distribution of research respondents, there were 86 patients with an average age of 44.65+15,308 years. Regarding age categories, the age group 46-59 years as much as 32 patients (37.2%), then 31-45 years as much as 28 patients (32.6%), 19-30 years as much as 12 patients (14%), over 60 years as much as 10 patients (11.6%), and the age groups 0-5 years and 6-18 years with two patients each (2.3%).

The most common genders were women as much as 58 patients (67.4%) and 28 patients (32.6%) were men. Bachelor's education level was the most common, namely 26 patients (30.2%), junior and senior high school with 20 patients each (23%), diploma with 9 patients (10.5%), elementary school with six patients (7%) and uneducational as many as five patients (5.8%).

Regarding domicile, 45 patients (52.3%) lived in Medan City, then 13 patients (15.1%) in Deli Serdang Regency, as many as 10 patients (11.6%) from Simalungun Regency, six patients (7%) from Binjai City, then Langkat and Serdang Bedagai Regency each had three patients (3.5%). Patients who come from Asahan Regency and Tebing Tinggi City accounted for two patients (2.3%), then patients from Batubara Regency and Pematang Siantar City had one patient each (1.2%). Most patients came to be treated at Surgery installation as much as 50 patients (25.6%), then Obstetrics and Gynecology installation with 22 patients (25.6%), ENT installation with 10 patients (11.6%), and Pediatric and Internal Medicine installation with two patients (2.3%) each.

Previous studies showed that overall, the most common symptoms were pain (19.1%), gastrointestinal complaints (13.8%), respiratory complaints (11.5%), neurological complaints (5.3%), fever (4 .9%), injury (4.1%), and bleeding (2.4%). More than 90% of gastrointestinal complaints were related to abdominal pain (52.1%) or nausea/vomiting (41.3%). Approximately 60% of respiratory complaints are related to respiratory problems or shortness of breath (63.0%). The most common neurological complaints among all ED visits were mental status changes (2.1%) and dizziness (2.0%) [15].

Cancer is a chronic disease and cancer patients can apply to emergency department with a variety of complaints. These complaints can be broadly classified into conditions that are directly caused by existing cancer (pain, compression, bleeding), conditions that develop due to chemotherapy treatment (tumor lysis, febrile neutropenia), and conditions which are indirectly caused by cancer (infectious, metabolic) [16]. Patients may apply to emergency department with only one or a combination of the above conditions. Many of these disease conditions are life-threatening and require immediate diagnosis and treatment. Early diagnosis and appropriate treatment are effective in improving patient care comfort. The first point of deployment for this group of patients is often emergency care. This situation increases number of requests and intensity of emergency care [17].

Increase in oncology cases every year throughout the world is reflected in number of hospitalizations in emergency rooms which is a serious problem for emergency care management which are currently very busy. Based on WHO data, it is estimated that number of active cancer sufferers in 2020 will be more than 19 million and 9.9 million (17.8%) of 55.4 million deaths in the world in 2019 were caused by cancer. Moreover, this number is expected to reach more than 16 million by 2040. Of more than 10 million newly diagnosed cancer patients in one year, 53% are men and 47% are women. Previous studies found that 65% of patients with an oncological diagnosis, who applied to the emergency department, were male and the mean age was 62 years old [18,19].

Another study found in their research that 58% of patients were male. In another study found that 52.1% of patients were men, 47.9% were women, the average age was 60 years old, and researchers found that these findings were consistent with the literature. Another study found that the importance of palliative care in emergency care is increasing, symptoms related to pain, nausea and shortness of breath occur frequently especially in oncology patients in the last period of their life, and this type of patients apply to emergency care for a long period of time. Pain relief in oncology patients is difficult with non-opioid drugs due to their physiopathology and frequent need for opioids, which can be considered as another factor that increases hospital admissions frequency. In their study, previous studies reported that most common type of cancer was GIS tumors on application, followed by lung cancer in second place [20,21].

Previous studies examined patient outcomes of emergency care and reported in their study that 70% of patients were discharged from emergency care and 23% were admitted to hospital. In the researchers' study, researchers observed that 62% of patients were discharged from emergency department, and 34% were admitted to intensive care and care units. In other studies, hospitalization rates in the general patient population in tertiary emergency care were reported to be between 12% and 13%. This shows that the hospitalization rate for oncology patients is relatively high compared to all hospitalizations, due to the difficulty of pain relief for cancer patients and the difficulty of home care for cancer patients [22].

4. Conclusion

The results of the research found that majority of patients are in the age group 46-59 years, female, bachelor, domicile in Medan and are treated in surgical installation.

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