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## Prevalence of Anxiety in Cancer Patients Undergoing Radiotherapy at Sanglah Hospital in 2022

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**Abstract---Background:** Anxiety disorders are one of the most common mental disorders found in society. Research shows that anxiety occurs in both adolescents and adults, however, the prevalence of anxiety disorders varies between populations (Badelow & Michaelis, 2015). Anxiety disorders can appear at any stage of the disease, from early diagnosis, and treatment, to palliative care. The increasing prevalence of cancer patients, which is accompanied by a high prevalence of anxiety disorders in society, makes it important to know the prevalence of anxiety disorders in cancer patients (Miaskowski et al., 2015). **Objective:** To determine the prevalence of anxiety disorders in cancer patients who undergo radiotherapy at Sanglah Hospital. **Methodology:** This study is a descriptive observational study with a cross-sectional design to describe the level of anxiety disorders in cancer/malignancy patients undergoing hospital outpatient treatment. Anxiety is measured by measuring the level of anxiety according to the Beck Anxiety Inventory (BAI). **Outcome:** Describing the prevalence of anxiety in cancer patients undergoing radiotherapy at Sanglah Hospital in 2022. **Aim of the results:** As an initial sample to determine and record the prevalence of anxiety in cancer patients undergoing radiotherapy at Sanglah Hospital in 2022 which can be used as a reference for further research/related research, as well as a consideration and basis for HR management in hospitals and the government in efforts to identify anxiety disorders in cancer patients early so that appropriate management can be carried out.

**Keywords---**anxiety, cancer, disorders, palliative, radiotherapy

#### Introduction

Anxiety disorders are one of the most common mental disorders found in society. Research shows that anxiety occurs in both adolescents and adults, however, the prevalence rates of anxiety disorders vary among populations (Bandelow & Michaelis, 2022). Meta-analysis studies show that the general prevalence of anxiety is 0.9% in China, 28.3% in Afghanistan, 2.4% in Italy, and 29.8% in Mexico. Research related to the global prevalence rate in 2013 shows that 7.3%, or the same as 1 out of every 14 people worldwide can suffer from anxiety disorders (Baxter et al., 2013). The results of Basic Health Research (Riskesdas) in 2013, Indonesia showed that as many as 6% of the

population aged 15 years and over (14 million people) in Indonesia experienced mental-emotional disorders which manifested as anxiety and depression disorders (Riskesdas, 2014; Lôbo et al., 2014; Martin et al., 2009; Mehta & Roth, 2015). Anxiety disorders, although not directly life-threatening, still have a significant morbidity and economic burden (Baqtayan, 2019; Chand et al., 2022; Charalambous et al., 2017; Hawari, 2001; Hoffman et al., 2009).

Anxiety is a psychological disorder that often accompanies various somatic disease diagnoses, especially somatic diseases that are chronically severe and have a high mortality rate. One example is cancer. As a life-threatening disease with a high mortality rate, cancer is a stressor that can increase anxiety for both patients and caregivers (Soleimani et al., 2017). Anxiety in a physiological state is a normal stress reaction and can be beneficial in some situations. Anxiety is a mental manifestation that indicates a signal of danger and helps us prepare ourselves and increase attention. Anxiety disorders are different from physiological anxiety, and involve excessive fear or anxiety. But anxiety disorders require therapy to help lead a normal productive life (American Psychiatric Association, 2017). Clinically significant anxiety disorders are found in around 7%-30% of oncology patients (Kent et al., 2016). Other studies have also found that the prevalence of depression and anxiety is often found to be higher among people with cancer compared to the general population, but these estimates vary widely due to several factors such as the treatment received, the type of cancer and the time since the diagnosis was made (Niedziedz et al., 2019).

As the survival of cancer patients increases, the prevalence of patients living longer with cancer is increasing. It will also increase exposure to stressors faced by cancer patients (Hoerger et al., 2016). When a patient has cancer, the patient will not only think about his personal affairs, but the patient's mind will also be burdened with things related to signs of worsening and treatment, and not infrequently about financial needs during cancer treatment. In addition, the patient's mental state is not ready to face the stressor, which of course is influenced by other factors related to the patient's social condition (Chan et al., 2017). Along with the advancement of medical science and the health financing system, it is easier to access cancer treatment and the survival of cancer patients is increasing. Anxiety disorders can appear at every stage of the disease, from the initial diagnosis, and treatment, to palliative care. The increasing prevalence of cancer patients, coupled with the high prevalence of anxiety disorders in society, makes it important to know the prevalence rates of anxiety disorders in cancer patients (Miaskowski et al., 2015). Based on the background above, the formulation of the problem in this study is what is the prevalence rate of anxiety disorders in cancer patients undergoing radiotherapy?

## Research Method

The research method uses a quantitative descriptive type approach with a cross-sectional design to determine the proportion of anxiety disorders in cancer/malignancy patients undergoing hospital outpatient treatment according to a predetermined research time (Pitman et al., 2018; Watts et al., 2015; Edition, 2013; Rustad et al., 2012). The structured interview method uses the Beck Anxiety Inventory (BAI) instrument. Researchers take care of ethical clearance following the provisions after the research proposal is determined to receive funds from Kemristek-BRIN. The researcher conducted a preliminary survey or tried the filling out of the interview instrument to several random health workers while waiting for ethics clearance, to ensure that the contents of the instrument were easy for respondents to understand (Warren et al., 1997; Jansson-Fröjmark & Lindblom, 2008).

After passing the ethical clearance test, the researcher takes care of permits from related parties. Filling in and collecting research data is carried out in stages to avoid mass gatherings. Respondents were explained that the data collected was anonymous and confidential so that respondents did not need to cover up the situation they felt (Alnagmy et al., 2022; Guntupalli et al., 2022). Data from the research instruments were collected and inputted into SPSS in stages, to be processed into descriptive data to calculate the anxiety score of the respondents. The research team compiled an initial report according to the existing format based on the progress of the research results obtained from the funding that had been disbursed in phase 1 accompanied by a process of mentoring, monitoring and evaluation from the internal institution proposing the program, namely Sanglah Hospital. The research team continued to fill in and collect the Phase 2 Instrument after obtaining approval to continue the research, then the Instrument data was collected and inputted into SPSS again in stages, to be combined with the Phase 1 data, and then processed into descriptive data to be reported in the final report, while going through the mentoring process, monitoring, and evaluation from internal institutions proposing the program. The research team also manages HKI and publishes research results according to existing contracts (Coughlin & Ekwueme, 2009; Kaatsch, 2010).

## Results and Discussion

### Results

A total of 92 participants from cancer patients undergoing radiotherapy at the Radiotherapy Installation of Prof Dr. I.G.N.G. Ngoerah. It was included in this study. In this study, it was found that the age of the participants was between 11 to 90 years and most of the participants came from the age group of 41-50 years (40.2%). The sample was dominated by women (85.9%), most of them did not work (59%), were married (88.0%), and had high school education (25.0%). The most common type of cancer found in the sample was cervical cancer (35.5%). Other cancers in this study sample consisted of prostate, brain, bone, lung, vulva, rectum, and parotid cancer.

Table 1  
Sample Characteristics

Gender	N = 92	(%)
Male	13	14.1
Female	79	85.9
Last education		
None	6	6.5
SD/Primary School	20	21.7
SMP/Junior High School	20	21.7
SMA/Senior High School	23	25.0
Diploma	4	4.4
S1/Bachelor	19	20.7
Occupation		
Working	33	35.9
None	59	64.1
Marital status		
Marry	81	88.0
Unmarried	10	10.9
Divorced	1	1.1
Age (year)		
11 – 20	2	2.2
21 – 30	5	5.4
31 – 40	8	8.7
41 – 50	36	39.1
51 – 60	21	22.8
61 – 70	13	14.1
71 – 80	4	4.3
81 – 90	3	3.3
Type of Cancer		
Cervical cancer	32	35.5
Breast cancer	25	27.2
Nasopharynx Cancer	13	13.6
Cervical cancer	3	3.9
Other Cancers	19	19.8

In this study, the BAI questionnaire was used to assess anxiety levels. Based on the BAI questionnaire, it was found that 87.0% of the participants experienced mild anxiety, while 12% experienced moderate anxiety (12.0%) and severe anxiety (1.1%) (Table 2).

Table 2  
Anxiety levels in cancer patients undergoing radiotherapy in RSUP Prof Dr. I.G.N.G. Ngoerah

		BAI	n	%
Anxiety Level (BAI)	Mild anxiety	0 – 21	80	87.0
	Moderate anxiety	22 – 35	11	12.0
	Severe anxiety	>35	1	1.0

In this study, the highest level of anxiety was found in the mild anxiety level of both sexes, namely 11 people (84.6%) in the male sex and 69 people (87.3%) in the female sex. In the educational status variable, the highest level of anxiety was found at the mild anxiety level, namely the last educational status of SD, SMP, and SMA. The high school education level had the highest level of mild anxiety, namely 21 people (91.3%). In the marital status variable, the highest level of anxiety was found in married status, namely at a mild anxiety level of 85.2%. In the age variable, the highest level of anxiety was found in mild anxiety (100.0%), namely the age range of 41 to 50 years (Mystakidou et al., 2005; Supportive & Board, 2021; Nikbakhsh et al., 2014; Nurpeni et al., 2014). In the variable type of cancer, the highest level of anxiety was found in the mild anxiety level for all types of cancer. Breast cancer has the highest level of anxiety, namely 24 samples (Table 3).

Table 3  
Anxiety Level (%)

	Sample Characteristics	n	Anxiety Level		
			n (%)	n (%)	n (%)
			Mild	Moderate	Severe
Gender	Male	13	11 (84.6)	2 (15.4)	0 (0)
	Female	79	69 (87.3)	9 (11.4)	1 (1.3)
Last education	None	6	2 (33.33)	2 (33.33)	2 (33.33)
	SD/Primary School	20	17 (85.0)	3 (15.0)	0 (0.0)
	SMP/Junior High School	20	17 (85.0)	3 (15.0)	0 (0.0)
	SMA/Senior High School	23	21 (91.3)	1 (4.3)	1 (4.3)
	Diploma	4	4 (100.0)	0 (0.0)	0 (0.0)
	S1/Bachelor	19	1 (94.7)	1 (5.3)	0 (0.0)
Marital status	Marry	81	69 (85.2)	11 (13.6)	1 (1.2)
	Unmarried	10	10 (100.0)	0 (0.0)	0 (0.0)
	Divorced	1	1 (100.0)	0 (0.0)	0 (0.0)
Age (year)	11 – 20	2	2 (100.0)	0 (0.0)	0 (0.0)
	21 – 30	5	5 (100.0)	0 (0.0)	0 (0.0)
	31 – 40	8	8 (100.0)	0 (0.0)	0 (0.0)
	41 – 50	36	36 (100.0)	0 (0.0)	0 (0.0)
	51 – 60	21	20 (95.2)	0 (0.0)	1 (4.8%)
	61 – 70	13	9 (69.2)	4 (30.8)	0 (0.0)
	71 – 80	4	0 (0.0)	4 (100.0)	0 (0.0)
	81 – 90	3	0 (0.0)	3 (100.0)	0 (0.0)
Type of Cancer	Cervical cancer	32	24 (75.0)	7 (21.9)	1 (3.1)
	Breast cancer	25	23 (92.0)	2 (8.0)	0 (0.0)
	Nasopharynx Cancer	13	12 (92.3)	2 (7.7)	0 (0.0)
	Cervical cancer	3	3 (100.0)	0 (0.0)	0 (0.0)
	Other Cancers	19	18 (94.7)	1 (5.3)	0 (0.0)

In this study, a Pearson correlation analysis was conducted based on the level of anxiety obtained from the BAI results and was associated with age, gender, educational status, and marital status. After conducting a correlation analysis, it was found that there was a statistical relationship between the level of anxiety with age and type of cancer (Table 4).

Table 4  
Correlation of Anxiety Level with Sample Characteristics

Variable	<i>p-Value</i> ( <i>p-value</i> : <0.05)
Age	0.000
Gender	0.804
last education	0.219
Work	0.304
Marital status	0.175
Type of cancer	0.021

### Discussion

Cancer is a disease that occurs due to the abnormal development of body cells. The cells develop rapidly and damage cells and other body tissues which can result in death for the sufferer (Simard et al., 2013; Spencer et al., 2010; Stark et al., 2002). Changes and physical symptoms and the threat of death that may occur can have a psychological impact on sufferers. In this study, it was found that all samples of cancer patients undergoing radiotherapy at Sanglah Hospital (Prof. Dr. I. G. N. G. Ngoerah Hospital) experienced anxiety disorders, ranging from mild to severe anxiety disorders, although no real causal relationship was studied. Anxiety symptoms are more likely to occur in patients in middle adulthood and are more common in women. There is ample evidence from the clinical literature that the prevalence of anxiety disorders is about two times higher in women than in men (Brizel et al., 1999; Barton et al., 2014). It is suggested that a potential mechanism underlying sex differences in stress-related anxiety is the existence of two anatomically and functionally distinct serotonergic circuits each associated with anxiety modulation. These serotonergic circuits may be controlled by reproductive steroid hormone hormone-dependent modulation of *crfr1* and *crfr2* expression in the dorsal raphe nucleus of the midbrain and by oestrous stage-dependent changes in  $\alpha$ -aminobutyric acid (GABAergic) neurotransmission in the periaqueductal grey, which ultimately leads to a differential type. gender in emotional behavior (Donner & Lowry, 2013). Epidemiological surveys of the general population have consistently found that lifelong anxiety disorders are less common in the elderly than in young adults. The reasons for these findings are unknown, but several hypotheses have been proposed including changes in brain neurotransmitter function, and age-related psychological and/or social changes. Another reason for the possible underestimation of the prevalence of anxiety in older individuals is the reluctance of parents to acknowledge emotional and psychological symptoms and memory biases. Other research also shows that cancer therapies such as chemotherapy and radiotherapy trigger stress which further exacerbates anxiety (Sharma & Purkayastha, 2021). The American Society of Clinical Oncology (ASCO) recommends screening for anxiety and depression in cancer patients. Screening should be started the moment cancer is first diagnosed and repeated continuously throughout therapy and recovery. This screening can prevent and treat problems caused by anxiety disorders (Akiskal et al., 1979; Zimmermann et al., 2008).

### Conclusion

Cancer patients undergoing radiotherapy at Sanglah General Hospital (RSUP Prof Dr. I.G.N.G Ngoerah) generally experience anxiety, ranging from mild to severe anxiety and the most common anxiety disorder is mild anxiety disorder. Therefore mental support for cancer patients undergoing radiotherapy is needed. And it is important to recognize mental disorders as early as possible, especially in patients who are prone to experiencing significant changes in their lives so as not to fall into severe mental disorders. Further research to find out other factors that play a role in influencing anxiety levels in cancer patients undergoing radiotherapy needs to be further investigated in the future (Stjernswärd et al., 2007; Clark, 2007).

### Suggestion

This research requires improvement in the future in the form of improved methods in which the identification of syndromes or symptoms of psychiatric disorders such as anxiety and other influencing factors can be recognized earlier. If possible, the sample should be multiplied and the research area expanded so that the data obtained is more

complete with a more thorough analysis. The development of this research can also be developed as a benchmark for improving mental services for patients who receive various kinds of health services in RSUP Sanglah (RSUP Prof. I. G. N. G Ngoerah).

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