

# OVERVIEW OF THE LEVEL OF DEPRESSION, ANXIETY AND POSTOPERATIVE STRESS IN BONE TUMOR PATIENTS AT ORTHOPEDIC HOSPITAL PROF. DR. R. SOEHARSO SURAKARTA

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**ABSTRACT**

Bone tumors are abnormal cell growths that occur in bones. Although fairly rare, bone tumors are not an easily cured disease, the type of bone tumor that attacks many those aged 10-20 years is classified as an active and aggressive type of tumor. Because once attacked, the roots can gnaw the bone to require amputation, because if not, it will risk the safety of the patient's life. One treatment of bone tumors is surgery. But in the treatment of surgery, it is not uncommon for psychological problems to arise experienced by patients. Psychological problems that often arise when postoperative bone tumors it is depression, anxiety and stress. The purpose of this study was to determine the picture of the level of depression, anxiety and postoperative stress in bone tumor patients. This study used a Quantitative descriptive research design, the sampling technique used in this study was total sampling. The samples in this study were all preoperative bone tumor patients totaling 39 people. The instrument used is DASS. The results showed that respondents did not experience depression, namely as many as 27 people (69.2%), 7 people (17.9%) experienced mild depression and 5 people (12.8%) experienced moderate depression. Respondents with very severe anxiety, namely as many as 13 people (33.3%), then 12 people (30.8%) did not experience anxiety, then moderate anxiety levels, which were as many as 11 people (28.2%), very severe anxiety as many as 10 people (25.6%).

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**INTRODUCTION**

Tumor cells are body cells that undergo changes from the body autonomously, which are out of control from normal cell growth so that their shape and structure are different from normal cells (Guadamillas, Cerezo, & Del Pozo, 2011). The difference in the character of tumor cells will depend on how much shape deviations, as well as their autonomous function in developmental properties, and their ability to infiltrate, and metastase (Jahanafrooz et al., 2020).

Bone tumors are abnormal cell growths that occur in bones. This tumor can occur in any part of the bone that starts in normal cells that change and grow

uncontrollably to form a mass (Saini, Kumar, Bhatt, Saini, & Malik, 2020). Bone tumors can be benign or malignant.<sup>2</sup>

Bone tumors are a relatively rare disease, in which tumor cells grow in bone tissue (Nugent, 2014). Bone tumors occur when cells within the bone divide or expand irregularly (Waldron, 1993). Usually cells will divide and develop regularly. If bone cells continue to divide irregularly, while the new cells that grow are not needed by the body, it will form a mass or tissue, which is called a tumor (López-Lázaro, 2018).

Bone tumors are relatively rare, their incidence is only 0.1% of all neoplasms suffered by humans (Fidaner, Eser, & Parkin, 2001). When compared to soft tissue tumors, the incidence of bone tumors is 10 times lower, the incidence of benign and malignant bone tumors is closely related to the age of the patient (Glass & Fraumeni Jr, 1970). Bone sarcomas have 2 peaks of incidence, the first peak in the 20s and the second peak in the age over 60 years.

The incidence of bone tumors is higher in men than women, with an incidence rate of 5.4 per million people per year in men and 4.0 per million in women, with a higher incidence in blacks (6.8 per million people per year) compared to whites (4.6 per million people per year).<sup>4</sup>

According to Errol Untung Hutagalung, a professor in Orthopaedic Surgery, University of Indonesia, within a period of 10 years (1995-2004) it was recorded

455 cases of bone tumors consisting of 327 cases of malignant bone tumors (72%) and 128 cases of benign bone tumors (28%).<sup>3</sup>

According to WHO, the incidence of primary tumors in bones is 0.2% of all tumors that occur in humans. In Indonesia alone according to data from Riskesdas 2007-2008 the national prevalence of tumor disease or cancer is 0.4% and from the Cancer Registration Agency (BRK) from 2003 there have been 257 cases of malignant tumors in the bone, 196 of which are primary tumors (Organization, 2013). And malignant tumors in Indonesia account for 1.6% of all types of malignant tumors in the human body.<sup>5</sup> At Surakarta Orthopaedic Hospital, the number of bone tumor patients in May-July 2022 amounted to 39 patients.

Although fairly rare, bone tumors are not an easily cured disease, the type of bone tumor that attacks many those aged 10-20 years is classified as an active and aggressive type of tumor. Because once attacked, the roots can eat away at the bone to require amputation, because if not, it will risk the life of the sufferer.<sup>6</sup>

This makes the patient assume that the patient will be amputated and lose a limb so that the patient will feel ashamed and traumatized and even cause stress due to fear of changing his life. Changes in life are one of the triggers of stress.<sup>7</sup> In addition, stress will arise when a person who knows for sure that he has cancer even at a very early stage and the patient feels stressed because he feels haunted by the image of death, afraid of the effects of treatment.<sup>8</sup> Stressful states can produce changes, both physiologically and psychologically, resulting in the development of a disease. Stress can also indirectly affect pain by changing individual behavior patterns.<sup>7</sup>

In addition to stress, bone tumor patients also experience psychological disorders in the form of anxiety. Anxiety in patients is a psychological disorder caused because patients face uncertainty, worries about effects cancer treatment, fear of

cancer progression resulting in death, in some situations they feel angry, afraid of sadness and distress and often experience mood swings.<sup>9</sup> Anxiety is very common and does not require a specialist for treatment, but if the condition is chronic, characterized by lack of interest, sometimes erratic mood, loss of pleasure continuously, so treatment is needed to function normally.<sup>10</sup>

In addition to stress and anxiety, cancer patients also experience depression caused by illness or medication that can cause physical disorders or abnormalities.<sup>11</sup> In addition, lifelong dependence on chemotherapy, role changes, job loss also cause depression. The impact of depression experienced will reduce treatment adherence and increase the risk of mortality.<sup>12</sup>

In general, psychological problems can decrease treatment, even not infrequently these problems appear simultaneously. Based on the description of the problem above, researchers are interested in raising the problem and conducting research in studies to take a closer look and in-depth analysis of the picture of the level of depression, anxiety and preoperative stress in bone tumor patients.

#### **Problem Statement**

Bone tumors are a relatively rare disease, in which tumor cells grow in bone tissue (Chapurlat et al., 2012). Bone tumors occur when cells within the bone divide or expand irregularly (Waldron, 1993). In bone tumor patients, it is not uncommon for patients to experience psychological problems in the form of depression, anxiety and stress. The results of a preliminary study conducted in the inpatient ward of Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta found that out of 7 bone tumor patients in the inpatient room 4 patients did not experience stress, 2 people had mild stress and 1 person experienced moderate stress. For anxiety, 1 person has mild anxiety, 4 people have moderate anxiety, 1 person has severe anxiety and 1 person has very severe anxiety. 4 people had no depression, 2 people had mild depression and 1 person had moderate depression.

Based on the description of the problem above, researchers are interested in raising the problem and conducting research in studies to take a closer look and more in-depth analysis of the picture of the level of depression, anxiety and postoperative stress in bone tumor patients.

#### **Research Objectives**

##### **a. General Purpose**

To find out the picture of the level of depression, anxiety and postoperative stress in bone tumor patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta.

##### **b. Special Purpose**

- 1) To find out the picture of socio-demographic characteristics of bone tumor patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta.
- 2) To determine the frequency distribution of depression, anxiety and postoperative stress levels in bone tumor patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta.

#### **4. Research Benefits**

##### **a. Theoretical Benefits**

This study is expected to strengthen the theory about the picture of the level of depression, anxiety and postoperative stress in bone tumor patients at the Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta.

#### **b. Practical Benefits**

##### **1) For the Nursing Profession**

This study is expected to provide nursing services to describe the level of depression, anxiety and postoperative stress in bone tumor patients so as to improve the quality of nursing care.

##### **2) For Health Services**

This study is expected to be used as data in screening depression, anxiety and postoperative stress in bone tumor patients

##### **3) For Nursing Research**

This study is expected to provide a real picture of depression, anxiety and preoperative stress experienced by bone tumor patients

##### **4) For Patients**

This study is expected so that patients get professional care in bone tumor treatment to prevent depression, anxiety and stress that can aggravate the patient's physical and mental condition.

### **RESEARCH METHODS**

This study used a descriptive research design. Descriptive research is a research method carried out with the aim of making a picture or descriptive of a situation objectively. Descriptive research methods are used to solve or answer the problem at hand.<sup>33</sup>

This study used a type of quantitative research. Quantitative research is the values of changes that can be expressed in numbers (scoring). In quantitative research, researchers conduct a variable using research instruments.<sup>34</sup> Quantitative research is used to determine the picture of the level of depression, anxiety and preoperative stress in patients with bone tumors. The research design uses a cross-sectional approach that aims to find out the picture of research at one time without any follow-up.

### **RESULTS AND DISCUSSION**

#### **Research Results.**

##### **1. Characteristics of Research Respondents**

Table 4.1. Frequency Distribution of Respondent Characteristics by Gender at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

<b>Respondent's Gender</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Man	18	46,2
Woman	21	53,8
<b>Total</b>	<b>68</b>	<b>100</b>

Table 4.1 shows that female sex is more common in this study, namely 21 people (53.8%), while male sex as many as 18 people (46.2%).

Table 4.2. Frequency Distribution of Respondents' Characteristics by Age at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

Age	Frequency	Percentage (%)
18-25 Years	17	43,6
26-35 Years	4	10,3
36-45 Years	4	10,3
46-55 Years	6	15,4
56-65 Years	4	10,3
>65 Years	4	10,3
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.2 shows that the age of 18-25 years was found in this study, which was 17 people (43.6%), then the age of 46-55 years as many as 6 people (15.4%). Ages 26-35 years, 36-45 years and >65 years have the same frequency value of 4 people each (10.3%).

Table 4.3. Frequency Distribution of Respondent Characteristics based on Type of Work at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N = 39)

Respondent's Occupation	Frequency	Percentage (%)
Work	16	41,0
Not Working	23	59,0
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.3 shows that many respondents in this study were not working, namely as many as 23 people (59.0%). While those who work as many as 16 people (41.0%).

Table 4.4. Frequency Distribution of Respondents' Characteristics based on Marital Status at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

Marital Status	Frequency	Percentage (%)
Marry	20	51,3
Unmarried	14	35,9
Janda/ Duda	5	12,8
<b>Marital Status</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Marry	20	51,3
Unmarried	14	35,9
Janda/ Duda	5	12,8
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.4 shows that most of the study respondents were married, namely 20 people (51.3%), 14 people (35.9%) were unmarried and 5 people (12.8%) were widows/widowers.

Table 4.5. Frequency Distribution of Respondent Characteristics based on Education Level of Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

Education Level	Frequency	Percentage (%)
SD	9	23,1
SMP	7	17,9
SMA	19	48,7
Academy/ College	4	10,3
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.5 shows that the education of the most research respondents was found with the level of high school education, which was 19 people (48.7%), while the least academy / college education was found in this study, which was 4 people (10.3).

Table 4.6. Frequency Distribution of Respondent Characteristics based on Income Level at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

Education Level	Frequency	Percentage (%)
<1 Million	26	66,7
1-3 Million	10	25,6
3-5 Million	1	2,6
>5 Year	2	5,1
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.6 shows that the most income level found is <1 million which is 26 people (66.7%), while the least income level found is 3-5 million which is as many as 1 person (5.1%).

#### Overview of Depression Levels

Table 4.7. Frequency Distribution of Depression Rate of Preoperative Bone Tumor Patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

Depression Levels	Frequency	Percentage (%)
Normal	27	69,2
Light	7	17,9
Keep	5	12,8
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.7 shows that the depression level of the most study respondents was found not to have depression, namely as many as 27 people (69.2%), 7 people (17.9%) had mild depression and 5 people (12.8%) had moderate depression.

#### Overview of anxiety levels

Table 4.8. Frequency Distribution of Anxiety Level of Preoperative Bone Tumor Patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

<b>Anxiety Level</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Normal	12	30,8
Light	1	2,6
Keep	11	28,2
Heavy	5	12,8
Very Heavy	10	25,6
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.8 shows that patients who did not experience anxiety were most found in this study at 12 people (30.8%), then moderate anxiety levels, which were 11 people (28.2%), very severe anxiety as many as 10 people (25.6%). While the least was found in respondents who experienced mild anxiety, which was as many as 1 person (2.6%). Overview of stress levels.

Table 4.9. Frequency Distribution of Preoperative Bone Tumor Patient Stress Level at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta (N=39)

<b>Stress Level</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Normal	25	64,1
Light	5	12,8
Keep	3	7,7
Heavy	6	15,4
<b>Total</b>	<b>39</b>	<b>100</b>

Table 4.9 shows that normal stress levels were most commonly found in this study, namely as many as 25 people (64.1%), 6 people (15.4%) experienced severe stress and 5 people (12.8%) experienced mild stress and 3 people (7.7%) experienced moderate stress.

### **Socio-Demographic Characteristics**

This study found that female sex was more common than male sex, which was as many as 21 people (46.7%) (Dartnall & Jewkes, 2013). This is also possible because women have a large risk factor for cancer, this is likely due to genetic factors and hormones contained in women (Winters, Martin, Murphy, & Shokar, 2017). Hormonal factors that are very influential are the length or speed of menstruation or menopause which results in longer exposure to the hormone estrogen in the body.<sup>43</sup>

In addition, women often consume fatty foods (41.9%) and preservative animal foods (42.1%) which are associated with high cases of new cancer (Gomes et al., 2017). This is also because the types of cancer found, which are usually suffered by women, namely mammary cancer (44.1%) and ovarian cancer (14.7%) (Akkuzu & Ayhan, 2013).

This study found that the age of 18-25 years was found in this study, which was as many as 17 people (43.6%), then the age of 26-35 years as many as 4 people (10.3%). This is possible because at that age there are germinal mutations of Rb and p53, but it is not strong enough to be evidence due to the number of Very few findings. Some researchers suggest a link.<sup>45</sup>

At that age, the process of bone growth is still very active. Human bone growth occurs in a part called the metaphysis or growth plate, where if the plate is still open then the increase in bone length can still occur and vice versa, if the metaphysis is closed late then the increase in bone length cannot occur.<sup>46</sup>

Age can increase the likelihood of certain diseases. Many types of cancer can cause a greater risk in people older than 45 years of age compared to the risk in younger people.<sup>47</sup> This age group may decrease cell and tissue function in the body can result in a buildup of cells that will long make It is difficult to repair so that there will be cell damage in the body. Gradually the human immune system is increasingly susceptible to various degenerative diseases such as cancer.<sup>48</sup>

Many respondents in this study did not work, as many as 23 people (59%). While those who work as many as 16 people (41%). The type of work is one element and socio-demographic factors can increase the risk of cancer, the risk is related to exposure to carcinogenic substances in the environment. A person working as an employee, self-employed, private sector is at risk of exposure to carcinogenic substances.<sup>49</sup>

The work environment is also a factor in the occurrence of cancer, the most respondents are housewives whose work is usually at home, so sometimes housewives do not think about their health conditions due to taking care of children and husbands, unhealthy lifestyles, eating foods that are high in fat and carcinogens can cause cancer to occur and lack of activities such as sports and health services to find out about their health status.<sup>43</sup> A person if rarely exercise or rarely move, unhealthy and irregular eating patterns, and unhealthy lifestyles such as smoking and consuming alcohol will increase the risk of cancer <sup>50</sup> In this study, it was found that the marital status of most bone tumor patients was married, which was 20 people (80%), while widows / widowers as many as 3 people (7.7%) and 16 (41%) patients were not married. None of the cancer patients undergoing chemotherapy were unmarried. Marriage is one of the goals of a person's life to develop and have children. In women who marry at a fairly old age, will have a greater risk of breast cancer. The hormones progesterone and estrogen in the mother will increase after giving birth, if the mother does not breastfeed then the hormone levels become unstable and at great risk of breast cancer. The older you have your first child, the greater your risk of developing breast cancer. At age 30 or older and have never given birth to children, the risk of developing breast cancer increases.<sup>51</sup>

Tingkat Pendidikan SMA paling banyak ditemukan pada penelitian ini, yaitu sebanyak 19 orang (48,7%), kemudian pendidikan SD sebanyak 9 orang (23,1%). Tingkat pendidikan responden berpengaruh terhadap kebiasaan pengobatan responden salah satu faktor yang mempengaruhi ketidakterlambatan pengobatan



responden pada penyakit. Tingkat pengetahuan responden yang rendah menyebabkan rendahnya pengetahuan tentang penyakit.<sup>52</sup>

The highest level of high school education was found in this study, which was 19 people (48.7%), then elementary education as many as 9 people (23.1%). The level of education of respondents affects the treatment habits of respondents, one of the factors that affect the delay in respondents' treatment of diseases. The low level of knowledge of respondents leads to low knowledge about diseases.<sup>52</sup>

Education is very influential because the higher the education of the person, the more knowledge about the disease will be obtained and vice versa the lower the education, the less information obtained about the disease, it can be concluded that knowledge is very important for everyone to know information and the development of treatment for cancer both in the form of prevention and those already in the treatment stage.<sup>43</sup> Educational status that Low affects the level of knowledge and awareness of cancer experienced. Low levels of education also affect lifestyles that can increase the risk of developing cancer, especially breast cancer.<sup>53</sup>

In this study, it was found that bone tumor patients had the most income level < 1 million, which was 26 people (66.7%), then income 1-3 million as many as 10 people (25.6%). Poverty has been linked to high rates of almost all diseases, from infant mortality to cancer. This is possible because families with low incomes (below MSEs) prioritize meeting other household needs that are considered more important, such as daily needs rather than health needs because until now early detection of cancer as an effort for early diagnosis has not been a priority for someone to maintain their health.<sup>54</sup>

Economic status imbalance in health considerations can be defined as the difference in the incidence of health problems between people with high economic status and low economic status. Economic status affects knowledge of disease. This is because, people with high economic status have higher incomes than people with status The imbalance of economic status in health considerations can be defined as the difference in the incidence of health problems between people with high economic status and low economic status. Economic status affects knowledge of disease. This is because, people with high economic status have higher incomes than people with low economic status, allowing access to good health services. It can implement appropriate health behaviors.<sup>55</sup>

#### **Postoperative Bone Cancer Patient Depression Rate**

The depression level of the most research respondents was found not to have depression, namely as many as 26 people (66.7%), 6 people (15.4%) had mild depression and 7 people (17.9%) had moderate depression. Depression can be influenced by several things including psychosocial factors, biological factors, cognitive factors and environmental stressors. Any individual can experience depression according to conditions and environment or problems encountered such as when the condition is sick with medical diagnosis and hospitalization.<sup>56</sup> Being diagnosed with cancer is one of the great stressors experienced by a person and can

cause distress with one of the manifestations that appear to be symptoms of depression.

#### **Postoperative Bone Cancer Patient Anxiety Level**

This study found that patients who did not experience anxiety were most found in this study which was 12 people (30.8%), then moderate anxiety levels, which were as many as 11 people (28.2%), very severe anxiety as many as 10 people (25.6%). While the least was found in respondents who experienced mild anxiety, which was as many as 1 person (2.6%). Anxiety is a vague and diffuse worry related to feelings of uncertainty and helplessness.

#### **Postoperative Stress Level of Bone Cancer Patients**

This study found that the most normal stress levels were found in this study, namely as many as 25 people (64.1%), 6 people (15.4%) experienced severe stress and 5 people (12.8%) experienced mild stress and 3 people (7.7%) experienced moderate stress. The high and low levels of stress experienced by each individual vary, can be influenced by cognitive assessment and acceptance of each individual. Depending on the cognitive assessment process, someone who evaluates the stressor as irrelevant will assume that the stressor is unimportant and tends to have a low degree of stress.<sup>67</sup>

#### **Research Limitations**

This research has been attempted and carried out in accordance with science, but nevertheless still has limitations. This research data only examines respondents through respondent recognition alone using questionnaires. Researchers have not directly observed the physiological, emotional and behavioral stress reactions that might influence level assessment and reactions to depression, anxiety and stress. In addition, because in filling out questionnaires sometimes respondents give dishonest answers and the resulting data may not be able to measure the actual situation, it is possible that respondents are influenced by feelings of reluctance in answering questions.

#### **CONCLUSION**

The most postoperative bone tumor patients were women, namely 21 people (53.8%), aged 18-25 years were found in this study, namely 17 people (43.6%). The most respondents who did not work were found in this study, namely 23 people (59.0%). Most of the respondents were married as many as 20 people (51.3%), the level of high school education was mostly found in this study, which was as many as 19 people (48.7%). The most income level found was <1 million, which is 26 people (66.7%). Postoperative bone tumor patients at Orthopedic Hospital Prof. Dr. R. Soeharso Surakarta Most did not experience depression, which was 27 people (69.2%), most did not experience anxiety which was 12 people (30.8%), and most did not experience stress which was as many as 25 people (64.1%),

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