

## ANXIETY AND COPING IN SCHOOL-AGED CHILDREN DURING CHEMOTHERAPY TREATMENT

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### ABSTRACT

Cancer was a chronic disease that increased child mortality. Treatment processes and drug side effects, fear of relapse, frequent re-entry, and death, functional impairment, changes in body image, decreased self-esteem, and challenges in transitioning back to life caused considerable stress and anxiety for pediatric cancer patients. Almost all pediatric cancer patients were faced with at least one psychosocial problem, of which anxiety and depression often coexisted and were most frequently reported. Anxiety and coping affected the quality of life of children with cancer. This research aimed to identify anxiety and coping in school-age children during chemotherapy treatment. This research used a quantitative descriptive method. Forty-five children participated in this research. The research instrument used for data collection was anxiety and coping questionnaires. Data were analyzed using descriptive analysis. The result of this research showed that the majority of school-age children's anxiety during chemotherapy programs was in the moderate anxiety category, while the majority of children's coping was in the maladaptive coping category. Anxiety and coping were factors that affected the quality of life of children with cancer. Further research is expected to examine interventions that can improve adaptive coping in children undergoing chemotherapy.

Keywords: anxiety, coping, chemotherapy, school-age children

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## INTRODUCTION

Cancer is a chronic disease that increases child mortality. Around 200,000 new cases of childhood cancer are diagnosed every year worldwide (Zahnreich & Schmidberger, 2021). Cancer is still a very serious health issue, especially in children, requiring a lot of treatment, like chemotherapy. The complex nature of cancer treatment has a significant impact on pediatric patients' psychological health in addition to their physical health (Lewandowska et al., 2021).

In recent years, the use of intensive regimens for the treatment of cancer in children has led to significant changes in patient's quality of life. One of the therapies used to treat cancer in children is chemotherapy. However, chemotherapy can have a negative physical and psychological impact on children. This happens because chemotherapy is a systemic therapy with cytotoxic agents that can inhibit the growth of cells that divide rapidly, both cancer cells and normal cells in the body (Hunger & Mullighan, 2015). Physical impacts occur such as pain, nausea, fatigue, and others, while the psychological impacts are mood disorders, anxiety, low self-esteem, and others (Rodgers et al., 2016). One of the psychological effects that often arise in school-age children during chemotherapy is anxiety.

School-age children who receive chemotherapy have a complex experience that includes both the treatment's direct physical effects and its psychological effects (Melesse et al., 2022). One typical emotional reaction that shows up as a major factor affecting children's mental health during chemotherapy is anxiety (Brand et al., 2017). Anxiety and coping strategies are two major psychosocial issues that school-age children receiving chemotherapy must deal with, and these issues have a significant impact on their overall quality of life (Matos et al., 2023).

Comprehending the complex relationship between anxiety and coping mechanisms is essential to creating thorough and tailored interventions that take into account the particular requirements of this susceptible group (Zahnreich & Schmidberger, 2021). Although the physiological effects of chemotherapy have been well-researched, there is a significant vacuum in the

literature when it comes to the psychological effects, particularly the complex relationships between anxiety and coping strategies in school-age children. By exploring the complex experiences of these children through chemotherapy treatment, this study aims to close this gap by identifying anxiety patterns and coping mechanisms that are common among this population.

Breaking down the link between school-age children's anxiety and coping becomes crucial as we work through the challenges of treating childhood cancer. It is expected that the results of this study will make a significant contribution to the current body of knowledge by educating educators, caregivers, and healthcare professionals about practical ways to support and improve the well-being of children dealing with cancer and chemotherapy. In the end, a better comprehension of anxiety and coping in this setting can open the door to focused interventions that promote resilience and raise the young patients' quality of life overall.

The significance of researching anxiety and coping in school-aged children during chemotherapy treatment lies in the recognition of the comprehensive impact that pediatric cancer and its treatment have on a child's overall well-being. While the physical aspects of cancer and chemotherapy are extensively studied, the psychological dimensions, particularly anxiety and coping mechanisms, remain relatively underexplored in the context of school-aged children.

The purpose of this study was to investigate anxiety and coping in school-aged children undergoing chemotherapy using a quantitative descriptive method. Using validated questionnaires as research tools, we hope to capture the finer details of the young participants' anxiety levels and coping strategies.

## METHOD

The design used in this research was a descriptive design with a quantitative research type that employed a cross-sectional research approach. The average population of pediatric patients

enduring chemotherapy programs with totalled 82 patients. Determination of the number of samples using the Slovin formula and the results obtained were 45 children. Sample inclusion criteria included school age (9-12 years), currently enduring chemotherapy, no emergency complications during chemotherapy, and willingness to be respondents.

The instrument used in this study was a questionnaire on anxiety and coping of school-age children undergoing chemotherapy, which was developed based on various literature (Nursalam et al., 2023; Padovani et al., 2021; Srivastava et al., 2020). This questionnaire has been tested for validity and reliability and the results are valid and reliable. The validity test of the questionnaire was carried out by testing the correlation between the score (value) of each question item against the total score of each questionnaire group using the Pearson Product Moment test. All statement items in the anxiety questionnaire were valid ( $r$  count=0.738-0.923;  $r$  table=0.707). Similarly, all statement items in the coping questionnaire were valid ( $r$  count=0.720-0.961;  $r$  table=0.707). The Cronbach's alpha values of the anxiety and coping questionnaires were 0.933 and 0.982, respectively, so these two questionnaires were declared reliable.

Research data was collected directly from the respondents. Children are accompanied by parents and researchers in filling out the questionnaire. Data had been taken in the Pediatric Ward, RSUP Dr. Kariadi Semarang. Researchers explained the research to children and parents before collecting data, after which they were invited to sign an informed consent form. This study has received approval from the nursing ethics committee of Dr. Kariadi Hospital Semarang. Researchers applied research ethics which include maintaining confidentiality, beneficence, integrity, and respect for participants.

The data in this study were analyzed univariate. The collected data were analyzed using SPSS for Windows (version 26.0; IBM Corp.), including: the participants' general characteristics, level of anxiety, dan coping.

Based on the results of the research as presented in Table 1, it shows that of 45 respondents, the mean or average age of the respondents is 10.18 years with a standard deviation of 1.31, the minimum age is 9.33 and the maximum is 12 years.

**Table 1 . Average age of respondents (n=45)**

Variable	mean	SD	Min-max
Age	10.18	1.31	9.33-12.00

**Table 2. Characteristics of Respondents (n=45)**

Characteristics	Frequency	%
Gender		
Man	28	62.2
Woman	17	37.8
Medical diagnosis		
ALL	29	64.4
AMY	12	26.7
Retinoblastoma	3	6.7
Ewing sarcoma	1	2.2
Chemotherapy frequency		
More than 3 times	14	31.1
Less than 3 times	31	68.9
Total	45	100

Table 3 below shows that respondents in the non-anxiety category are 8.8% (4 respondents), 37.8% mild anxiety (17 respondents), moderate anxiety as much as 42.2% (19 respondents), and severe anxiety as many as 11,1% (5 respondents). The majority of respondents' coping was in the maladaptive category as many as 53.3 % (24 respondents).

**Table 3. Frequency Distribution of Respondents based on Anxiety and Coping in the Pediatric Ward, RSUP Dr. Kariadi Semarang (n= 45)**

Characteristics	Frequency	%
Anxiety		
No anxiety	4	8.8
Mild anxiety	17	37.8
Moderate anxiety	19	42.2
Anxious	5	11.1
Coping		
Maladaptive	24	53.3
Adaptive	21	46.7
Total	45	100

## RESULTS

## DISCUSSION

The results showed that most respondents were 9 years old and the average respondent was 10.18 years old. A person's psychological behaviour is influenced by age, the more mature a person's age is, the more ready he is to do things considered important for him, in this case, the chemotherapy treatment he is enduring. The more mature a person's age is, the more concerned that person will be with his or her health.

The gender of the respondents showed that the majority were male. Women usually have better resistance to stressors than men, biologically, women's body flexibility will tolerate stress better than men. Gender is very influential in responding to disease, stress, and the use of coping in dealing with problems. Respondent's diagnosis shows the results that the diagnosis of most respondents is ALL, amounting to 64.4 % (29 respondents). Leukaemia or blood cancer is the most common type of cancer experienced by children in various parts of the world, including Indonesia.

The results of the research also showed that the frequency of chemotherapy for most of the respondents was more than 3 times. Hospitalization is a scary time for children and their families. The things that most children worry about are procedures that are painful and unfamiliar to the hospital environment. Repeated chemotherapy increases the child's concern about possible side effects and repeated pain experiences (Duran et al., 2020).

The majority of respondents experienced moderate anxiety. Anxiety among children receiving chemotherapy is frequently brought on by a confluence of physical, psychological, and social aspects related to the cancer diagnosis and treatment. This anxiety is caused by several things including fear of medical procedures, perceived threat to life, uncertainty and lack of control, physical discomfort and side effects, separation anxiety, disruption to normal life, fear of relapse, and limited understanding of the illness (Matos et al., 2023; Srivastava et al., 2020; Wechsler et al., 2022).

Children's experiences with treatment are closely related to the quality of life of children with

cancer. Children who have experience with chemotherapy tend to be used to routine treatment and have good coping mechanisms (Brand et al., 2017). Chemotherapy experience is a factor in the incidence of anxiety in children. This relates to adaptive coping mechanisms that are owned based on experience.

Treatment processes and drug side effects, fear of relapse, frequent re-entry, and death, functional impairment, changes in body image, decreased self-esteem, and challenges in transitioning back to life cause considerable stress and anxiety for pediatric cancer patients (Brand et al., 2017). The course of the disease, the side effects of chemotherapy and treatment procedures, disturbances in the developmental trajectory, and a worsening of the prognosis of the disease all manifest in the form of psychological, emotional, physical, and social symptoms, and affect psychological adjustment. (Park & Rosenstein, 2015).

While coping and physical adjustment share a relationship in the context of responding to stressors and life changes, they represent distinct constructs in psychological and medical literature. Coping generally encompasses a range of strategies individuals use to manage stress, including emotional, problem-focused, or avoidance-oriented approaches. On the other hand, physical adjustment specifically focuses on tangible changes and adaptations individuals make in response to alterations in their physical well-being, health conditions, or external environment (Rabenu & Yaniv, 2017; Stanislawski, 2019).

Evidence suggests psychological adjustment problems among children with cancer manifest differently across developmental stages. School-age children have limited awareness of the course of the illness and its treatments and are more at risk for symptoms of distress due to the course of treatments and prolonged hospitalisation (Melesse et al., 2022). The feelings of anxiety experienced by children before enduring chemotherapy are classified as situational anxiety, namely a source of anxiety associated with certain activities or events. This anxiety usually arises due to concerns about the chemotherapy procedure that will be undertaken and the side effects that can be

caused. These effects are pain, sadness, fatigue, nausea and vomiting, hair loss, diarrhoea, constipation, sleep disturbances, fear of worsening conditions, and others (Rodgers et al., 2016).

This research concludes that the majority of coping respondents are in the category of maladaptive coping. Maladaptive coping refers to strategies or mechanisms that individuals employ in response to stressors or challenges, but these strategies are ineffective, counterproductive, or may even exacerbate the situation (Algorani & Gupta, 2023). In the context of school-aged children undergoing chemotherapy, maladaptive coping can manifest in various ways, impacting their ability to manage the stress associated with cancer treatment. Maladaptive coping showed by school aged children in this study were avoidance behaviors, withdraw socially/avoiding interactions, regression in behavior, and expression of intense emotions such as anger or aggression.

Effective coping produces permanent adaptations which are new habits and improvements from old situations, while ineffective coping ends with maladaptive behaviours that deviate from normative desires and can harm oneself, others, and the environment (Berman et al., 2016). Children with cancer enduring chemotherapy must have to cope with hospitalization, pain, side effects of treatment, time spent inactive, and uncertainty about the success of treatment (Delvecchio et al., 2019).

This coping is strongly influenced by family support and nursing interventions to improve coping strategies (Sposito et al., 2015). There are differences in coping behaviour based on gender, age, and type of cancer. This difference highlights the need for personalized interventions that include specific characteristics to facilitate the child's adaptation to treatment (Padovani et al., 2021). There is a negative correlation between the age of children with cancer on stress, anxiety, depression, clinical adaptation, and emotional symptoms. Younger children are psychologically vulnerable because they can't have adequate cognition about the disease and recommendations for follow-up (Wechsler et al., 2022).

The child's response to receiving a cancer diagnosis quickly changes in the first few weeks

after diagnosis. Diagnosis is often initially filled with feelings of shock and fear. Treatment, especially those related to chemotherapy, is viewed as an unpleasant experience and restrictive, however, children quickly show that they are used to the treatment that must be endured. Children described the belief that they would recover from their illness. This greatly affects the child's coping (Mant et al., 2019). Strategies differed significantly according to gender, age group, type of cancer, duration of disease, and treatment. Nurses need to improve intervention programs that promote the ability to cope with school-age children and adolescents with cancer (Khamchan & Punthmatharith, 2020).

## CONCLUSION

School-age children's anxiety during chemotherapy programs is in the moderate anxiety category, while the majority of children's coping is in the maladaptive coping category. Anxiety and coping are factors that affect the quality of life of children with cancer. These findings provide recommendations for nurses to formulate interventions that aim to reduce anxiety and improve adaptive coping skills in pediatric cancer patients enduring chemotherapy. Future research is expected to analyze effective interventions to reduce anxiety, also increase adaptive coping, and quality of life for children with cancer.

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