



The Influence of Psycho-Educational Therapy on Anxiety in Children with Cancer Undergoing Chemotherapy

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Abstract

Cancer is still a significant health problem that causes a high mortality rate worldwide. It affects not only adults but also children. One of the types of cancer commonly suffered by children is leukemia. Chemotherapy is one of the treatments for leukemia. Unfortunately, chemotherapy often leads to issues in children, such as anxiety. This aimed to determine the influence of psycho-Education on anxiety in children with leukemia undergoing chemotherapy. This method using a pre-experimental design with one group pretest posttest. The sample was obtained using total sampling, consisting of 25 respondents. Psycho-educational therapy was conducted three times, and it consisted of four sessions in each activity, namely: Session 1 (education about cancer and treatment therapy), Session 2 (effects of chemotherapy), Session 3 (actions and prevention of chemotherapy side effects), and Session 4: stress management (teaching various non-pharmacological stress management techniques). The intervention was administered three times before the scheduled chemotherapy for 15 minutes. The researcher used Anxiety test by using the Spence Children's Anxiety Scale (SCAS). Results: The Wilcoxon test results showed a p-value of 0.001. Based on the research findings, it indicated that there is an influence of Psycho-Educational Therapy on anxiety in children with leukemia undergoing chemotherapy.

Keywords: Anxiety, Chemotherapy Children, Psycho-Education

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1. Introduction

Cancer remains a significant health issue and a leading cause of death worldwide (Arbyn et al., 2020). It is a chronic disease, which is characterized by uncontrolled and abnormal cell division, invading surrounding tissues, and potentially spreading throughout the body via the bloodstream and lymphatic system. Cancer is a severe illness that not only affects adults but also many children (Lam et al., 2019). Cancer in children is considered a life-threatening disease, and without proper management, it can have a poor prognosis (Pizzoli et al., 2019). The projected global cancer cases will reach 22 million by 2032 (Li et al., 2021). The number of children affected by cancer is approximately 3%-5% of all cancer cases. According to the World Health Organization (WHO), there is an annual increase in the number of children diagnosed with cancer, approximately 400,000 children and adolescents aged 0-19 years. WHO also states that every two minutes, a child is diagnosed with cancer. Indonesia ranks first in the number of cancer patients in Southeast Asia. In 2020, Indonesia recorded an additional 396,914 cases of cancer in children (Windasari et al., 2022). One of the most common types of cancer in children is leukemia (Namayandeh et al., 2020). Leukemia is a condition where an excessive number of white blood cells are produced. Treatment and care for childhood leukemia require an extended period, typically ranging from 6 months to 3 years (Sahlol et al., 2020).

Treatment and care need to be continuous, involving both inpatient and outpatient care. Chemotherapy is one of the therapies used for leukemia. Chemotherapy is a sustained intervention that can have therapeutic effects. However, chemotherapy can also lead to physical and psychological problems in children (Pelcovits & Niroula, 2020). Chemotherapy can inhibit cell growth, pain, nausea, hair loss, difficulty gaining weight, and fatigue. Among the psychological issues that often occur in children are anxiety, fear, mood disturbances, low self-esteem, treatment non-compliance, trauma, and even a refusal to undergo therapy (Hussain et al., 2021). Anxiety is the most commonly experienced response by children with leukemia undergoing chemotherapy. Anxiety is a response to specific threatening conditions (Putri et al., 2020).





Previous research has shown that chemotherapy has negative impacts, such as worry, anxiety, fear, and even negative experiences during treatment (Lestari et al., 2020). Other studies have also mentioned that post-chemotherapy symptoms can trigger anxiety about future chemotherapy programs. Post-chemotherapy pain is one of the reasons patients experience increased anxiety. Anxiety can manifest in various ways, and it typically increases before chemotherapy sessions (Simanullang & Manullang, 2020). A preliminary study conducted at the Yayasan YKAKi Semarang halfway house found that the majority (8 out of 10) of children experience anxiety while waiting for their chemotherapy appointments. This anxiety response includes restlessness, irritability, sensitivity, and fear, and some children even refuse to undergo chemotherapy (Megasari et al., 2023).

One way to address anxiety issues in children with leukemia undergoing chemotherapy is through psycho-educational therapy. Psycho-education is an atraumatic intervention provided to individuals to enhance coping mechanisms in handling problems and mental changes. Psycho-educational therapy also involves providing information to solve the issues and discussing patient needs to reduce stress, manage symptoms, develop relaxation techniques, and enhance adaptation to specific conditions. Other research has shown that implementing psycho-educational therapy can reduce anxiety and improve a person's readiness to undergo particular procedures (Tsai et al., 2020).

Psycho-educational treatment has several benefits, including easy application, cost-effectiveness, and building a relationship between patients and nurses. Psycho-educational therapy includes several stages, such as problem identification (cancer), knowledge provision related to the problem (cancer), and stress management (anxiety) (Sutinah, 2020). Each stage aims to maximize the impact of psycho-education, as each has different roles and functions. Based on these considerations, the researcher intends to conduct a study titled *The Influence of Modality Therapy (Psycho-Education) on Anxiety in Children with Leukemia Undergoing Chemotherapy*.

2. Research Method

This study used a pre-experimental design with a one-group pretest post-test approach. The study population consisted of children diagnosed with leukemia undergoing





chemotherapy at the YKAKi Semarang Halfway House in May-June 2023. In this research, we used total sampling involving 25 respondents. The dependent variable in this study is anxiety, while the independent variable is psycho-educational therapy. The psycho-educational therapy provided to the intervention group was divided into four sessions, as follows:

1. Session 1 (education about cancer and treatment therapy).
2. Session 2 (prevention of chemotherapy side effects).
3. Session 3 (management of chemotherapy side effects).
4. Session 4: stress management (teaching various non-pharmacological stress management techniques suitable for children).

The intervention was administered three times before scheduled chemotherapy sessions, with each session lasting for 15 minutes. The researcher applied univariate analysis in this study to describe each variable in frequency distribution, including age, gender, and treatment duration. Bivariate analysis was performed to determine the influence of applying psycho-educational therapy on the anxiety of children with leukemia undergoing chemotherapy. The instruments used in this study were observation sheets for respondent characteristics and an anxiety assessment instrument. Anxiety was measured before and after the intervention using the Spence Children's Anxiety Scale (SCAS). The construct validity of the SCAS instrument was previously confirmed by Spence, Rape, Donald, and Ingram (2001), with results of $r = 0.68$ and $r = 0.59$. The reliability test for measuring anxiety levels in children was conducted by Spence (1998), Muris (2000), Muris (2002), Spence, Barrett, and Turner (2003), with coefficient alpha values ranging from 0.9 to 0.92. It indicates that the Children's Fear Scale, or SCAS, meets the reliability criteria with a coefficient alpha > 0.8 .

The instrument comprises 32 questions, with a total score of 112. Anxiety levels are categorized as mild anxiety (1-38), moderate anxiety (39-76), and severe anxiety (77-112). Moreover, the researcher used the statistical test by applying the Wilcoxon test. This research has received ethical approval from the Ethics Commission of the Faculty of





Medicine, Sultan Agung University, Semarang, with approval number 338/VIII/2023/Bioethics Commission.

3. Results And Discussions

a. Result

The research activities were conducted from July 23 to July 26, 2023, at Rumah Kita, the Indonesian Children's Cancer Foundation (YKAKI) branch in Semarang. The participants in this study consisted of 25 respondents.

1) Respondent Characteristics

The most respondents were male, comprising 16 (64%) individuals, and the most common age group was five years, with 5 (20%) individuals.

Table 1.
Characteristics of Respondents

Characteristic Respondent	f	%	P value
Gender			
Man	16	64	0.65
Woman	9	36	
Age			
4 years	1	4	0.58
5 years	5	20	
6 years	2	8	
7 years	3	12	
10 years	2	8	
11 years	2	8	
12 years	1	4	

2) Level of Anxiety

The results show that before the intervention, the most common level of anxiety was severe, with 11 (44%) respondents. In contrast, after the intervention, the most common class of anxiety was mild, with 18 (72%) respondents.

Table 2.
Level of Anxiety in Respondents (n=25)

Grade of Anxiety	Pre-test	Pos-test
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	f	%	f	%
light	5	20	18	72
medium	9	36	6	24
heavy	11	44	1	4

3) The Influence of Psycho-Educational Therapy on Anxiety in Children with Leukemia Undergoing Chemotherapy

This result summed up that there is an influence of psycho-educational therapy on anxiety in children with leukemia undergoing chemotherapy. It is supported by a p-value of 0.001.

Table 3.

The Influence of Psycho-Educational Therapy on Anxiety in Children with Leukemia Undergoing Chemotherapy

Condition	Mean \pm SD	<i>p-value</i>
Pre-test	2.24 \pm 0.77	0.001
Post-test	1.32 \pm 0.55	

The statistical test results in this study yielded a p-value of 0.001. It indicates that there is an influence of psycho-educational therapy on anxiety in children with leukemia undergoing chemotherapy. Cancer is a disease that can lead individuals to imagine future life changes due to the condition they are suffering from or the disease process (Mattiuzzi & Lippi, 2019). Many cancer patients, especially children undergoing chemotherapy, experience emotional disturbances, particularly anxiety (Carlsson et al., 2019). Anxiety is an individual's response to specific threatening situations and is a normal part of human development, change, new experiences, or identity and life-meaning discovery. Anxiety can occur because there are receptors in the brain that receive the neurotransmitter gamma-aminobutyric acid (GABA). When GABA is transmitted to the receptors, neurons are instructed to stop guessing.

b. Discussion





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Volume 2 | Number 1 | March 2024 |



Generalized anxiety disorder occurs when GABA cannot accurately bind to the receptor cells or when there are too few GABA receptors without the proper amount of GABA reception. Excessive neurons will cause people not to receive enough impressions to stop (Adwas et al., 2019). As a result, individuals continue to be tense, excessively anxious, and agitated, leading to an increase in the sympathetic nervous system, causing physiological changes such as trembling, sweating, increased heart rate, abdominal pain, shortness of breath, and behavioral changes such as restlessness, rapid speech, startled reactions, and indirectly, the emergence of symptoms as an attempt to combat anxiety (Lasselin et al., 2020).

The result aligns with the condition of the respondents before the intervention, where the majority experienced severe anxiety, with 11 (44%) respondents. Interviews with the respondents revealed that anxiety mainly arises when they are about to undergo chemotherapy. Anxiety emerges because many children are not yet able to cope with symptoms that occur after chemotherapy. The previous post-chemotherapy pain also caused children to experience anxiety about subsequent chemotherapy sessions. This issue must be taken seriously. If this condition persists, it poses a risk of children developing trauma and refusing to undergo chemotherapy. Therefore, this research provided an intervention in the form of psycho-educational therapy to reduce the level of anxiety in respondents, especially before undergoing chemotherapy.

Psycho-educational therapy is a non-traumatic intervention provided to individuals to improve coping mechanisms in handling a problem or for mental changes (Kirkland, 2022). Psycho-educational therapy also involves providing information to solve the issues and discussing patient needs to reduce stress, manage symptoms, develop relaxation techniques, and enhance adaptation to specific conditions (Bartolo et al., 2019). This Psycho-educational therapy consists of four sessions, each lasting 15 minutes (Pulungan et al., 2022). In the first session, respondents were educated about cancer, especially leukemia, and treatment therapy, specifically chemotherapy. In the second session, respondents were educated about the chemotherapy program, especially the side effects of chemotherapy. In the third session, respondents received





education on the management and prevention of chemotherapy side effects. Instruction was delivered using interactive video media to increase the respondents' interest in understanding and absorbing the material, consistent with previous research indicating that the appropriate choice of media is crucial when educating children (Siregar, 2023).

The fourth session covered stress management education. Respondents were taught various stress management techniques, including relaxation and distraction techniques. Relaxation and distraction techniques are non-pharmacological methods aimed at reducing pain and encouraging patients to divert their attention from the ongoing procedure (Komann et al., 2019). Besides relieving pain, these methods can enhance relaxation, minimizing anxiety during the intervention. Several relaxation and distraction methods include video games, virtual reality glasses, controlled breathing, and relaxation techniques (Rohyani & Millya, 2021). Of these techniques, the researcher applied deep breathing techniques and video games. It was done to ensure that the intervention was effectively and engagingly implemented.

After the intervention, the level of anxiety in the respondents decreased to mild anxiety, with 18 (72%) respondents. It is consistent with previous research indicating that psycho-educational therapy effectively reduces depression, stress, and anxiety in tuberculosis patients. Previous studies also showed that psycho-education can affect rest and sleep management. Sleep disturbances frequently occur in patients undergoing chemotherapy. They experience a decrease in sleep duration, reduced sleep quality, and reduced sleep efficiency, making patients highly vulnerable to fatigue and depression (Dewi et al., 2023).

4. Conclusion

Based on the research findings, it can be wrapped up that there is an influence of Modality Therapy (Psycho-Education) on anxiety in children with leukemia undergoing chemotherapy, as evidenced by a p-value of 0.001.

5. Compliance with ethical standards

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Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.

Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

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Volume 2 | Number 1 | March 2024 |



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