

TOUCH THERAPY IN COMPACT APPLICATION TO REDUCE ANXIETY LEVELS AMONG PARENTS OF CHILDREN WITH CANCER

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ABSTRACT

Every year an estimated 400,000 children are diagnosed with cancer with the most common type of cancer suffered by children being leukemia at 58%. This condition can affect parents' health both physically and psychologically, especially mothers as caregivers of their children. The psychological disorder that is often experienced by mothers of children with cancer is anxiety. At the same time, a mother is also required to provide emotional support to her child who is sick. Touch Therapy contained in the COMPACT application (Communication on Palliative care Treatment) is one form of digital health that can be done by parents with cancer children to help reduce the level of anxiety. This study aims to investigate Touch therapy in the COMPACT Application on anxiety in children with cancer. The research method used is quantitative Quasi-Experimental with a one-group pre-test, post-test design. The population consists of mothers of cancer children at Cahaya Community Foundation, with a sample size of 26 participants using purposive sampling by using criteria: A mother of children with cancer after being diagnosed with cancer with aged 3-6 years. Data collection was computerized, and analysis was performed using dependent t-test. The results of data analysis show that the average anxiety level of respondents before receiving Touch therapy was 40.31 (mild anxiety), which decreased to 38.08 (mild anxiety) after therapy. It can be concluded that interventions effectively reduce anxiety levels in mothers with cancer children, with a p-value of 0.001. Therefore, it is recommended that those parents of cancer children and the Cahaya Community Foundation use the COMPACT touch application as an intervention to manage anxiety.

Keywords: Touch Therapy, Anxiety, Parents, Children, Cancer

INTRODUCTION

The World Health Organization (2020) reported that the incidence of cancer in children increases every year. In the last 5 years, the incidence of cancer in children has reached approximately 800,000 children. The prevalence of leukemia in 2018 in all countries was found to be 2.4% of new cases and 3.2% of deaths. The incidence of childhood cancer in Indonesia is very high, because it is still ranked 4th after China, India and the United

States. In Indonesia, according to WHO in 2019, the incidence of leukemia was 35,870 cases in the last five years with deaths reaching 11,314 people (WHO, 2019). According to Riskesdas, the prevalence of leukemia cancer in West Sumatra is 2.4%, which is the second highest incidence after Yogyakarta province 4.9%, this is included (Riskesdas, 2018). Based on medical record data at M Djamil Hospital, there is an increase in cases of acute lymphoblastic leukemia in

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children every year. In 2016, there were 51 children with ALL. Furthermore, in 2017, there were 89 new cases and in 2018 there was an increase with 142 new cases (Rahmat et al., 2022).

According to the Cancer Treatment Community (ICCC), leukemia with the type of Acute Lymphocytic Leukemia (ALL) and Acute Myeloid Leukemia (AML) is the most common cancer in children. Kudubes, Bektas, and Ugur (2014) said that children diagnosed with cancer can experience psychological, physical, social, and cognitive changes. The patient's thoughts when diagnosed with cancer are a small or short life expectancy, and this causes fear, sadness and worry to arise, these emotional conditions will affect the level of human immunity (Sofianingtyas et al., 2015). Clinical symptoms that appear in children with leukemia are colds that do not heal, pale, lethargic, fever, anorexia and weight loss, petechiae, bruising without cause, pain in bones and joints, abdominal pain, lymphadenopathy, and hepatosplenomegaly (Wati & Qoyyimah, 2018).

This causes families including parents of children with cancer to experience various stressors. These stressors cause parents to fall into an unstable psychological condition in the form of excessive fear, feelings of giving up, despair and experiencing anxiety (Handrianto & Mawaddah, 2021). Rahmani et al. (2018) stated that increased anxiety levels in parents who know their child has cancer can affect the health of the parents themselves, resulting in the most intense stressors that can be felt, disrupting family functions, experiencing stress due to financial conditions, having to deal with diseases that can recur, and because cancer is also a disease that can be life-threatening (Ruslan et al., 2021).

A study of parents who have children with cancer showed a percentage of 17.1%

for mothers and 8.0% for fathers who experienced symptoms of anxiety (Thabet & Mona, 2017). This shows that the percentage of maternal anxiety is higher because mothers spend more time looking after and caring for their children. González-Arratia and Valdez explained that as a mother, even though she is in a difficult situation, she also has an important role in the treatment process that her child must undergo (Ruslan et al., 2021).

Management of anxiety in mothers of children with cancer can be done by giving pharmacological and non-pharmacological therapy. Some examples of pharmacological treatment are alprazolam, lorazepam, diazepam, clobazam. While non-pharmacological therapy can be given in the form of music therapy, relaxation therapy, muromental therapy, hypnocommunication, and touch therapy (Hermanto et al., 2020). Touch therapy is a therapy by placing or rubbing hands on the patient's shoulders, back and back of the hands or placing hands on parts of the patient's body that feel pain (Dwiastuti & Yulisetianingrum, 2016). Touch therapy can increase relaxation, reduce anxiety and stress, and improve mood (Mangione et al., 2017). Touch therapy can also reduce pain through various physical manipulation procedures and hand touch (Gras et al., 2019). This is supported by research that reports that touch therapy significantly reduces symptoms of pain, nausea, and anxiety.

While there have been limited studies explaining touch therapy, to our knowledge, there is no study examining the effects of touch therapy on anxiety in mothers of children with cancer. Understanding touch therapy on anxiety is needed to improve strategies for managing anxiety in mothers of children with cancer, as well as to provide information for nurses and other health care providers to be able to apply touch therapy to deal with parents of children with cancer who



are anxious. Although little is known about touch therapy, it is important to obtain new intervention findings that can help manage mothers of children with cancer, thus allowing these findings to contribute to the body of knowledge in pediatric nursing and complementary nursing.

In the digital era, many studies have identified the convenience of smartphones in implementing health services. A study suggests that a smartphone-based anxiety management program, which is a highly accessible and cost-effective intervention, may provide similar benefits to face-to-face interventions and shows promise for being effective on emotional, social and quality-of-life dimensions of patients with multiple anxiety disorders. Research has shown that health apps are applicable and preferred by patients and healthcare professionals. (Thurnheer et al., 2018).

Based on these problems the researcher creates a technology -based application, namely the COMPACT (*Communication on Palliative Care Treatment*) application. The application describes several communication therapies in guarding cancer patients. One of the treatments is touch therapy to help reduce the anxiety of parents with patients in undergoing the disease process. COMPACT applications are made to facilitate the use of technology in overcoming anxiety. This application is made in collaboration with multidisciplinary sciences, namely the Faculty of Health and Programmer IT to create applications with significant benefits in overcoming problems in the foundation, especially in the management of mothers with cancer patients. Therefore, the purpose of this study was to determine the effect of touch therapy on anxiety in mothers of children with cancer.

METHODS

Research Design

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This research uses a quasi-experimental design with a one group pre-test post-test approach. The intervention in this study was using Touch Therapy in the COMPACT application. The intervention is used to determine the patient's anxiety condition and anxiety intensity as measured by the SCAS (*Spense Children's Anxiety Scale*). Researchers conducted research by starting an interview for consent to become a respondent and accompanied by an explanation of the purpose of providing therapy. Touch therapy begins by measuring the mothers of children with cancer anxiety level (pre-test). Researchers conducted research by starting an interview for consent to become a respondent and accompanied by an explanation of the purpose of providing therapy. Therapy is carried out for 10 minutes, once a day for two consecutive days. Then the mother's anxiety level (post-test) was repeated after being given therapy.

Setting and Samples

A purposive sampling technique was employed to recruit the respondents. Data were collected in West Sumatera Province, specifically at the Cahaya Community Cancer Foundation, Padang. Twenty-six mother of children with cancer participated in this study. Inclusion criteria were: 1) A mother of children with cancer after being diagnosed with cancer for more than one month; 2) A Mother of Children aged 3-6 years; 3) Able to follow the intervention given well.

Data Collection

After getting the ethical approval, researchers are lettering the foundation to request permission in collecting the data. Then, the researchers were given access to meet for the recently admitted parents and asked for consent from the mothers. For those who were chosen to be respondent, the researcher made an appointment to meet the

mothers to provide a written respondent information sheet and explain verbally the details of the study. Those who agreed to participate in the study were invited to sign informed consent before the intervention began.

Touch therapy is adopted and modified from Arizna's touch therapy procedures (Arizna & Zuraidah, 2019). Intervention began by measuring the respondents' anxiety using the SCAS (Spense Children's Anxiety Scale) instrument. Then the respondents took a comfortable position and created a calm environment. Researchers collaborated with the mother's family to use the COMPACT application. Researchers directed the mother's family to watch a touching video and directly apply it to the mother who was experiencing anxiety. Respondents were given touch therapy by watching touch therapy videos for 10 minutes using COMPACT Application. This therapy was given once a day for 2 consecutive days. And after that the respondents' anxiety will be measured again with the same instrument. Data was collected between August and September 2024.

Data Analysis

The analysis used in this research is a description of the characteristics of respondents with a frequency distribution. In this study, a normality test was used to determine whether the data obtained was normally distributed or not. From the normality test, it was found that the data was normally distributed, this can be seen from the results of the Shapiro Wilk normality test which is marked with a p-value $> 0,05$. Data were analyzed using a dependent t-test to see the level of anxiety in mothers of children with cancer before and after being given touch therapy.

Ethical Consideration

Prior to data collection, ethical approval of this study was obtained from the Research Ethics Committee of an educational institution in West Sumatra Province, Indonesia, with the ethical approval number 294/KEPK/VIII/ 2024. Respondents were informed that their participation was voluntary; they sign informed consent after being fully informed about the study and that there would be no penalty if they wished to withdraw their participation at any time before data collection was completed.

RESULT

This research produced the characteristics of respondents which are shown in table 1.

Table 1 informs that most respondents are in the early adulthood age range (50%). The family member who accompanies the child the most when he/she is sick is the mother, because the role and instinct of the mother are closer to the child so that when the child undergoes treatment more mothers are found (Mess et al., 2022).

In this study, it was dominated by mothers with early adulthood. Psychologically, early adulthood mothers have sensitivity to something, emotional tension such as uncontrolled emotional conditions, unstable, restless and when interviewed the researcher really had to convince the parents with children with cancer in detail the meaning of the touch (Ozturk & Katikol, 2024).

Based on table 1, the most common cancer experienced by children of respondents was Leukemia ALL (76.9%). WHO (2021) states that every year an estimated 400,000 children are diagnosed with cancer including bone cancer, brain cancer, eye cancer, liver cancer and blood cancer (World Health Organization, 2021).



Table.1 Characteristics of Respondents (N=26)

Variable	Frequency	Percentage (%)
Age		
Late teens (17-25 y.o)	1	3.8
Early adulthood (26-35 y.o)	13	50.0
Late adulthood (36-45 y.o)	7	26.9
Early alderly (46-55 y.o)	5	19.2
Type of Cancer		
Retina Blastoma	2	7.6
Leukemia ALL	20	76.9
Leukemia AML	1	3.8
Leukemia LGK	1	3.8
Osteosarcoma	2	7.6

The most common types of cancer suffered by children are leukemia (blood cancer) with a percentage of 58% which is the majority, and retinoblastoma (eye cancer) which is 2.4 out of 100,000 children in

Indonesia. The most common leukemia suffered by children is leukemia with the types of Acute Lymphoblastic Leukemia (ALL) and Acute Myeloid Leukemia (AML) (American Cancer Society 2019).

Table 2. The Effect of Touch Therapy Based on COMPACT Application to Reducing the Anxiety

Variables	N	Mean	Standard Deviation	Mean Difference	P-value
Before	26	40,31	5.237	2.23	0,001
After	26	38,08	3.877		

DISCUSSION

This study found that mothers with children with cancer experienced mild anxiety. Before being given touch therapy, the description of children's anxiety included; (72%) mothers often feel more anxious than usual when they see their child's condition getting worse, (81%) mothers often feel like their world is falling apart when they find out their child is diagnosed with cancer, (90%) mothers rarely feel okay and often feel bad things will happen to their child, (90%) mothers often do not feel calm and cannot sit comfortably when accompanying their child undergoing cancer treatment, and (79%) mothers can rarely sleep and rest at night peacefully when their child's condition starts to get worse.

The level of anxiety in mothers of children with cancer is influenced by their thoughts. Anxiety comes from an uneasy mind (Bhattacharya et al., 2016). This can be seen when researchers interviewed several respondents, it was found that respondents experienced different symptoms or complaints, including respondents feeling anxious about their child's condition, respondents feeling anxious when accompanying their child undergoing treatment, respondents being afraid of something bad happening to their child's condition, patients looking nervous when interviewed, respondents saying they were afraid of their own thoughts, and respondents also saying they could not rest peacefully. Mothers of children with cancer have a high



psychological risk for post-traumatic symptoms, high levels of stress, and significant levels of anxiety such as feeling restless, nervous, anxious, anxious, sweating, and others (Nurusshohwah & Indrawati, 2022).

Touch therapy is one of the complementary nursing therapies that aims to help or even cure patients by balancing the energy field. Touch Therapy aims to align, fill and improve the flow of human energy by removing blockages in a person's biofield so that it can help reduce anxiety, a person feels relaxed and calm (Sujianto & Johan, 2019). Previous research reported that the anxiety level of 16 patients before undergoing quantum touch therapy had an average of 57.75 and after undergoing quantum touch therapy the anxiety level decreased further (46.38). Touch therapy in this study has been proven to be effective in reducing anxiety in mothers of children with cancer. Touch therapy in this study illustrates that touch can reduce pain and anxiety due to cancer suffered by patients, namely by doing very light touches on the body (Gagne & Toye, 1994). Touch therapy was chosen by researchers because it is a therapy that has no side effects and is more efficient, by simply focusing energy on the hands and then doing touches that will transfer the therapist's positive energy so that patients who are given therapy will improve because they are affected by the energy of the therapist (Ünal Aslan & Çetinkaya, 2022).

The family member who accompanies the child the most when he/she is sick is the mother, because the role and instinct of the mother are closer to the child so that when the child undergoes treatment more mothers are found. In this study, it was dominated by mothers with early adulthood. Psychologically, early adulthood mothers have sensitivity to something, emotional tension such as uncontrolled emotional

conditions, unstable, restless and when interviewed the researcher really had to convince the parents with children with cancer in detail the meaning of the touch. When the mother is touched, the mother feels comfort and calm, the touch therapy used can smooth the blood cycle, because with the touch the mother feels like being rubbed on the back, given warmth, so that she feels a change in the level of comfort after being touched (Wahyuningrum, 2023).

This touch therapy can increase the mother's brain waves to improve blood circulation, respiratory rate and increase oxygen flow from the brain to the entire body, so that it can provide a comfortable sensation by increasing the secretion of the serotonin hormone from touch. The serotonin hormone is a hormone that can increase calmness and provide antidepressants, so that it can stimulate stimulation related to brain activity, in addition serotonin can increase the capacity of receptors that can bind glucocorticoids which cause a decrease in adrenaline hormone levels so that it causes feelings of relaxation and comfort. This touch therapy begins with the transduction of impulses that are channeled through the "c" fibers as the first neurons from the periphery to the spinal cord where the impulses are modulated, then this touch can affect the hypothalamus so that it produces endorphin hormones so that it causes feelings of pleasure and relaxation, increases safety, pleasure, and comfort so that it can reduce anxiety parents with children with cancer (Bagci et al., 2020).

COMPACT (Communication on Palliative Care Treatment) android-based application helps to facilitate mothers of children with cancer in accessing Touch therapy video. COMPACT is one of Digital health or more often referred to as tele-health, is the use of telecommunications to provide information and health services with a wide scope with the aim of improving public health



efforts (Sunjaya, 2019). The concept of using tele-health in the curative field is not something foreign in Indonesia. The use of tele-health brings many benefits (Jannah et al., 2021). COMPACT tries to manage information on health disorders in cancer patients and family, especially physical, psychological and spiritual disorders. In this study, COMPACT helps overcome psychological disorders of anxiety in mothers of children with cancer through Touch therapy video. COMPACT's rapid access to quality health information and services will improve health management, especially the self-management of mothers of children with cancer.

CONCLUSION

The COMPACT application is a development of health technology (tele-health) that focuses on palliative care conditions, especially cancer patients. One of the therapy menus offered by COMPACT is Touch therapy video which has been proven effective in reducing the level of anxiety in mothers of children with cancer. Touch therapy in COMPACT can be used anytime, anywhere, and is easily accessible. Thus, it is hoped that touch therapy in the COMPACT application can be utilized by mothers of children with cancer to overcome the anxiety they feel. And to the foundation to be able to continue the utilization of this application so that it can be used to improve the health of children with cancer and their mothers in health services or at home. COMPACT can also be used by nursing services in providing anxiety management care to patients, especially cancer patients and their families.

CONFLICT OF INTEREST

There are no conflicts of interest that occurred during the study.

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REFERENCCESS

- Arizna, S. D., & Zuraidah. (2019). *SOP Terapi Sentuhan* (Patent No. EC00202248693).
- Bagci, H., Cinar Yucel, S., & Bagci, H. (2020). A Systematic Review of the Studies about Therapeutic Touch after the Year of 2000. *International Journal of Caring Sciences*, 13(1), 231–240. www.internationaljournalofcaringsciences.org
- Bhattacharya, K., Pal, S., & Acharyya, R. (2016). Depression and Anxiety in Mothers of Children With Cancer and How They Cope With It: a Cross-Sectional Study in Eastern India. *ASEAN Journal of Psychiatry*, 17(1), 1–8.
- Dwiastuti, & Yulisetianingrum. (2016). Pengaruh Terapi Haling Touch Terhadap Penurunan Tekanan Darah. *Jikk*, 7(2), 01–79.

- Gagne, D., & Toye, R. C. (1994). The Effects Of Therapeutic Touch And Relaxation Therapy In Reducing Anxiety. *Archives of Psychiatric Nursing*, 8(3), 184–189. [https://doi.org/https://doi.org/10.1016/0883-9417\(94\)90052-3](https://doi.org/https://doi.org/10.1016/0883-9417(94)90052-3)
- Handrianto, W., & Mawaddah, N. (2021). Pengaruh Komunikasi Terapeutik yang Efektif terhadap Kecemasan Pasien di IGD RS Lavalette Malang. *Medica Majapahit*, 6(2), 59–77.
- Hermanto, A., Sukartini, T., & Esti, Y. (2020). Terapi Non Farmakologis Untuk Mengurangi Kecemasan Pada Pasien Kanker Dengan Kemoterapi: A Systematic Review. *Jurnal Penelitian Kesehatan Suara Forikes*, 11(4), 334–337.
- Jannah, S. R., Husain, F., Iswari, R., & Arsi, A. A. (2021). PEMANFAATAN MOBILE HEALTH (mH) DAN DAMPAKNYA PADA PERILAKU KESEHATAN MAHASISWA UNIVERSITAS NEGERI SEMARANG (UNNES). *Jurnal Sosiologi Nusantara*, 7(1), 181–192. <https://doi.org/10.33369/jsn.7.1.181-192>
- Mess, E., Misiąg, W., Kłasczyk, T., & Kryś, K. (2022). Depressive and Anxiety Disorders of Parents of Children with Cancer. *Journal of Clinical Medicine*, 11(19). <https://doi.org/10.3390/jcm11195670>
- Ozturk, C. S., & Katikol, E. (2024). Effect of mHealth-Based Relaxation Program On Stress Coping And Anxiety Levels in Mothers Of Children With Cancer: A Randomized Controlled Study. *Patient Education and Counseling*, 123. <https://doi.org/https://doi.org/10.1016/j.pec.2024.108247>
- Rahmat, R., Tjong, D. H., Almurdi, A., & Wulandari, M. (2022). Nilai Leukosit, Eritrosit dan Trombosit pada Penderita Leukemia Limfoblastik Akut Pasien Anak. *JURNAL KESEHATAN PERINTIS (Perintis's Health Journal)*, 9(2), 76–81. <https://doi.org/10.33653/jkp.v9i2.863>
- Ruslan, C., Satiadarma, M. P., & Subroto, U. (2021). Efektivitas Art Therapy Dalam Menurunkan Kecemasan Pada Ibu Yang Memiliki Anak Penderita Kanker. *Jurnal Muara Ilmu Sosial, Humaniora, Dan Seni*, 5(1), 55. <https://doi.org/10.24912/jmishumsen.v5i1.9853.2021>
- Sofianingtyas, L., Savitri, W., & Hutasoit, M. (2015). Komunikasi terapeutik perawat pada pasien kanker di rsud panembahan senopati bantul yogyakarta. *Media Ilmu Kesehatan*, 4(2), 59–66.
- Sunjaya, A. P. (2019). Potensi, Aplikasi dan Perkembangan Digital Health di Indonesia. *Jurnal Indoensia Medical Association*, 69(April), 167–169.
- Thurnheer, S. E., Gravestock, I., Pichierri, G., Steurer, J., & Burgstaller, J. M. (2018). Benefits of mobile apps in pain management: Systematic review. *JMIR MHealth and UHealth*, 6(10), 1–12. <https://doi.org/10.2196/11231>
- Ünal Aslan, K. S., & Çetinkaya, F. (2022). The effects of therapeutic touch on spiritual care and sleep quality in patients receiving palliative care. *Perspectives in Psychiatric Care*, 58(1), 374–382. <https://doi.org/10.1111/ppc.12801>
- Wahyuningrum, N. I. (2023). Penerapan Terapi Healing Touch (Terapi Sentuh) Pada Kalangan Lansia Dengan Gangguan Hipertensi Di Desa Kalibangkang, Kecamatan Ayah. In *Universitas Muhammadiyah Gombong*.
- Wati, N. L., & Qoyyimah, D. F. (2018). Tingkat Stres Ibu Yang Mempunyai Anak Kanker Leukemia di Rumah Cinta Bandung. *Jurnal Keperawatan BSI*, VI(1), 69–76.

