

## Abstrak

**Latar Belakang:** Gejala akibat kemoterapi pada anak leukemia limfoblastik akut (LLA) meningkatkan angka morbiditas, mortalitas, dan menurunkan kualitas hidup anak. Upaya identifikasi gejala dan penanganannya perlu diinisiasi melalui pengembangan aplikasi *mobile health* (*mHealth*).

**Tujuan:** Penelitian ini bertujuan untuk mengetahui pengaruh intervensi manajemen gejala akibat kemoterapi dengan *mHealth* terhadap gejala dan kualitas hidup anak LLA.

**Metode Penelitian:** Penelitian *mixed method quasi-experimental design* meliputi tiga tahap telah dilakukan di RSUP Dr. M. Djamil Padang dan RSUP Dr. Sardjito Yogyakarta pada bulan Agustus 2019 sampai Maret 2022. Data wawancara pada 31 orang tua dianalisa secara tematik. Selanjutnya, dilakukan uji pakar konten aplikasi dan *usability test* selama 3 hari pada 10 orang tua dengan anak LLA yang menjalani kemoterapi. Penelitian kuasi-eksperimen pada 60 responden orang tua yang memiliki anak LLA yang dikemoterapi dilaksanakan selama 4 minggu. Data dianalisis menggunakan uji *Friedman*, *Wilcoxon*, *Mann-Whitney*, dan *t-test* untuk melihat pengaruh intervensi terhadap perubahan skor gejala dan kualitas hidup antara *pre-posttest* pada kelompok intervensi dan kontrol.

**Hasil:** Studi ini mengidentifikasi empat tema yaitu: 1) efek kemoterapi bervariasi, individual, dan menyeluruh; 2) penatalaksanaan efek kemoterapi memerlukan penyesuaian, kreativitas, dan pemikiran kritis dari orang tua; 3) efek samping kemoterapi seringkali menantang dan rumit, yang bisa jadi sulit dan menjengkelkan bagi orang tua; dan 4) informasi dan komunikasi menjadi penting, sehingga aplikasi berdasarkan kebutuhan pengguna sangat penting. Tahap kedua didapatkan nilai validitas isi aplikasi 0,97 dan rata-rata kepuasan responden terhadap aplikasi *mHealth Chemo Assist for Children* (CAC) 4,28. Tahap kuasi-eksperimen diperoleh pengaruh intervensi manajemen gejala berbasis *mHealth* terhadap perubahan rata-rata skor gejala antara hari ke-1, ke-14, dan ke-28, skor total kualitas hidup, skor subskala kecemasan penatalaksanaan, khawatir, dan penampilan fisik yang dirasakan pada kelompok intervensi antara setelah dan sebelum perlakuan secara signifikan ( $p < 0,05$ ).

**Kesimpulan:** Intervensi manajemen gejala akibat kemoterapi berbasis *mHealth* CAC menurunkan gejala dan meningkatkan kualitas hidup anak LLA.

**Kata kunci:** *chemo assist for children*, gejala akibat kemoterapi, manajemen gejala, kualitas hidup, *mHealth*

### **Abstract**

**Background:** Symptoms due to chemotherapy in children with acute lymphoblastic leukemia (ALL) increase morbidity and mortality and reduce children's quality of life. Efforts to identify symptoms and their treatment need to be initiated by developing a mobile health application (mHealth).

**Objective:** This study aims to determine the effect of symptom management interventions due to chemotherapy with mHealth on symptoms and quality of life of children with ALL.

**Methods:** A mixed-method quasi-experimental design involving three stages has been conducted at RSUP Dr. M. Djamil Padang and RSUP Dr. Sardjito Yogyakarta from August 2019 to March 2022. Interview data on 31 parents were analyzed thematically. Next, we conducted an expert panel and usability test on ten parents of ALL children undergoing chemotherapy. Finally, a quasi-experimental study on 60 respondents of parents of children with ALL who received chemotherapy was implemented for four weeks. Data were analyzed using Friedman, Wilcoxon, Mann-Whitney, and t-test to identify the effect of the intervention on changes in symptom scores and quality of life between the pre-test and post-test in the intervention and control groups.

**Results:** We identified four themes, namely: 1) the effects of chemotherapy are varied, individualized, and comprehensive; 2) the management of the effects of chemotherapy requires adjustment, creativity, and critical thinking from parents; 3) chemotherapy side effects are often challenging and complicated, which can be difficult and very upsetting for parents; and 4) information and communication become necessary, so the application based on user needs is very important. In the second stage, the content validity value of the application was 0.97, and the average respondent's satisfaction with the mHealth Chemo Assist for Children (CAC) application was 4.28. In the quasi-experimental stage, we found that the effect of mHealth-based symptom management intervention on the average symptom score between days 1, 14, and 28, total score of quality of life, management anxiety subscale scores, worry, and perceived physical appearance in the treatment group significantly ( $p < 0.05$ ).

**Conclusion:** The mHealth application-based symptom management intervention reduces symptoms and improves the quality of life of children with ALL.

**Keywords:** chemo assist for children, chemotherapy-induced symptoms, symptom management, quality of life, mHealth