

INTISARI

Sistem pelaporan keselamatan radiasi di Fasilitas Onkologi Radiasi RSUD Dr. H. Abdul Moeloek masih dilaksanakan secara manual berbasis kertas yang menimbulkan ketidaklengkapan data, keterlambatan pelaporan, dan rendahnya capaian nilai Indikator Keselamatan dan Keamanan (IKK) yang berfluktuasi pada rentang 65–76 poin selama periode 2019–2024. Penelitian ini bertujuan untuk menganalisis kebutuhan, merancang, dan mengembangkan aplikasi digital berbasis *smartphone* yang memenuhi standar regulasi BAPETEN, mengimplementasikan dan menguji penerimaan aplikasi melalui persepsi kemudahan dan persepsi kegunaan terhadap niat penggunaan, serta mengevaluasi pengaruh implementasi aplikasi terhadap budaya keselamatan dan nilai IKK.

Penelitian ini menggunakan metode *Research and Development* (R&D) dengan model pengembangan ADDIE (*Analysis, Design, Development, Implementation, and Evaluation*) dan pendekatan kombinasi kualitatif-kuantitatif. Tahap analisis kebutuhan dilakukan melalui wawancara mendalam kepada empat profesi pengguna dengan analisis tematik. Tahap perancangan dan pengembangan menggunakan platform *Low Code No Code* (LCNC) AppSheet yang divalidasi oleh ahli praktisi dan ahli media. Tahap implementasi dan evaluasi menggunakan desain *one group pretest-posttest* terhadap 30 responden dengan analisis regresi linear berganda untuk menguji *Technology Acceptance Model* (TAM), regresi linear sederhana untuk menguji budaya keselamatan, serta simulasi penilaian IKK.

Hasil penelitian menghasilkan aplikasi SPEKTRA dengan skor validasi ahli 4,73 (94,5%) kategori Layak. Implementasi aplikasi meningkatkan persepsi kemudahan, persepsi kegunaan, dan niat penggunaan secara signifikan ($p < 0,001$), dengan persepsi kegunaan sebagai prediktor dominan ($\beta = 0,473$; $p = 0,022$). Implementasi berkorelasi positif signifikan dengan peningkatan budaya keselamatan ($F = 4,950$; $p = 0,034$; *Cohen's d* = 3,048) serta meningkatkan nilai IKK dari 75 (2025) menjadi proyeksi 94 (2026). Penelitian ini membuktikan bahwa pelaporan digital berbasis *smartphone* efektif mengoptimalkan sistem keselamatan radiasi di fasilitas onkologi radiasi.

Kata kunci: pelaporan digital, keselamatan radiasi, onkologi radiasi, budaya keselamatan, indikator keselamatan

ABSTRACT

The radiation safety reporting system at the Radiation Oncology Facility of RSUD Dr. H. Abdul Moeloek is still conducted manually using paper forms, causing incomplete data, delayed reporting, and a fluctuating Safety and Security Indicator (IKK) score of 65 to 76 during 2019–2024. This study aims to analyse, design, and develop a smartphone-based application complying with BAPETEN standards, to examine user acceptance through perceived ease of use and perceived usefulness toward intention to use, and to evaluate its effect on safety culture and IKK.

This study employed the Research and Development (R&D) method with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) using a mixed qualitative-quantitative approach. Needs analysis was conducted through in-depth interviews with five user professions, analysed thematically. Development utilised the Low Code No Code (LCNC) AppSheet platform, validated by practitioner and media experts. Evaluation applied a one-group pretest-posttest design on 30 respondents using multiple and simple linear regression to test the Technology Acceptance Model (TAM) and safety culture.

The study produced the SPEKTRA application with an expert validation score of 4.73 (94.5%), categorised Highly Feasible. Implementation significantly improved perceived ease of use, perceived usefulness, and intention to use ($p < 0.001$), with perceived usefulness as the dominant predictor ($\beta = 0.473$; $p = 0.022$), and correlated positively with safety culture improvement ($F = 4.950$; $p = 0.034$; Cohen's $d = 3.048$). IKK score increased from 75 (2025) to a projected 94 (2026). Smartphone-based digital reporting effectively optimises radiation safety systems in radiation oncology facilities.

Keywords: *digital reporting, radiation safety, oncology radiology, safety culture, safety indicator*