

INTISARI

Kebutuhan adanya informasi terkait *potentially inappropriate medications* (PIM) dalam proses persepsian pasien geriatrik di Indonesia masih berpotensi untuk dikembangkan menjadi layanan digital. Tujuan dari penelitian ini adalah mengetahui prevalensi PIM, obat-obat penyebab dan faktor penyebab PIM pada pasien geriatrik rawat jalan di rumah sakit; tingkat pengetahuan terhadap PIM, pengalaman penggunaan kriteria PIM eksplisit oleh dokter, apoteker, dan hambatan dalam persepsian pasien geriatrik; melakukan pengembangan *Geriatric Safe Drugs Use Application* (GESDUA), menguji efektivitasnya dalam menurunkan PIM, dan mengukur kepuasan pengguna.

Penelitian ini dilaksanakan dalam 5 tahap. Tahap pertama merupakan studi prevalensi PIM dan analisis faktor-faktor yang berhubungan dengan kejadian PIM menggunakan desain *cross-sectional* pada 494 rekam medik pasien geriatrik rawat jalan dan poliklinik geriatrik di RSUP Dr. Sardjito dan RS Akademik UGM, Yogyakarta. Tahap kedua yaitu studi *cross-sectional* tentang pengetahuan, pengalaman, dan hambatan tenaga kesehatan dalam menerapkan kriteria PIM eksplisit untuk persepsian pasien geriatrik di rumah sakit yang dilakukan menggunakan kuisisioner kepada 91 dokter dan apoteker di rumah sakit. Tahap ketiga merupakan pengembangan GESDUA android dan website dilanjutkan dengan uji validitas isi, uji *criterion validity*, dan uji reliabilitas. Tahap keempat merupakan *pilot testing* yang meliputi studi efektivitas GESDUA menggunakan desain *pre-and post-study design* terhadap 33 pasien di poliklinik geriatrik. Tahap kelima berupa survei kepuasan pengguna GESDUA kepada 22 dokter dan apoteker secara *cross-sectional*.

Hasil penelitian menunjukkan persentase PIM 38,66% dengan mayoritas obat-obatan penyebab adalah spironolakton, aspirin, kandesartan, glimepirid, dan lansoprazol. Faktor-faktor yang berhubungan dengan kejadian PIM adalah polifarmasi dan multimorbiditas ($p < 0.05$). Kurang dari 15% dokter dan apoteker menggunakan *Beer's Criteria* dan STOPP/START dalam praktek, namun pengetahuan terhadap obat-obatan penyebab PIM tergolong tinggi pada 58,33% dokter dan 58,18% apoteker. Hambatan paling sering dalam penerapan persepsian rasional untuk pasien geriatrik adalah polifarmasi. Fitur utama yang dikembangkan pada GESDUA adalah analisis PIM, analisis interaksi obat potensial, rekomendasi penggunaan obat pada pasien dengan gangguan ginjal. Tahap implementasi GESDUA menurunkan angka PIM 6.01% ($p > 0,05$). Skor *user satisfaction index* pengguna GESDUA sebesar 78.63% (kategori "puas").

Pengembangan dan implementasi GESDUA diperlukan untuk menurunkan angka PIM di rumah sakit dan meningkatkan pengetahuan tenaga kesehatan. Aplikasi ini perlu diterapkan dalam skala yang lebih luas dan lebih tepat sasaran untuk menghasilkan pengaruh nyata terhadap penurunan angka PIM pasien geriatrik.

Kata Kunci: *potentially inappropriate medications* (PIM), *Beer's criteria*, STOPP/START, geriatrik, *digital health*

SUMMARY

There remains considerable potential to develop digital services that provide information on potentially inappropriate medications (PIMs) to support the prescribing process for geriatric patients in Indonesia. This study aimed to determine the prevalence of PIM, as well as the causative drugs and contributing factors among geriatric outpatients in hospitals; to assess the level of knowledge regarding PIM; explore the experiences of physicians and pharmacists in applying explicit PIM criteria and identify barriers in prescribing; to develop the Geriatric Safe Drugs Use Application (GESDUA), tested its effectiveness in reducing PIM, and measured user satisfaction.

This study had been conducted in five phases. The first phase involved a prevalence study of PIM and analysis of factors associated with PIM incidents, using a cross-sectional design based on 494 medical records of geriatric outpatients at Dr. Sardjito General Hospital and the UGM Academic Hospital in Yogyakarta. The second phase was a cross-sectional study on healthcare professionals' knowledge, experiences, and barriers in applying explicit PIM criteria for prescribing medications to geriatric patients in hospitals. Data were collected using questionnaires administered to 91 physicians and pharmacists. The third phase focused on the development of the GESDUA application (both Android and web-based), followed by content validity testing, criterion validity testing, and reliability assessment. The fourth phase was a pilot study to evaluate the effectiveness of GESDUA using a pre-and post-study design with 33 patients in a geriatric outpatient clinic. The fifth phase consisted of a user satisfaction survey on GESDUA, conducted cross-sectionally among 22 physicians and pharmacists.

The study had shown that the prevalence of PIM had reached 38.66%, with the most implicated medications being spironolactone, aspirin, candesartan, glimepiride, and lansoprazole. Factors correlate to PIM incidence were polypharmacy and multimorbidity ($p < 0.05$). Fewer than 15% of physicians and pharmacists used the Beers Criteria and STOPP/START in clinical practice. However, the level of knowledge regarding PIM-causing medications had been categorized as high among 58.33% physicians and 58.18% pharmacists. The most frequently reported barrier to implementing rational prescribing for geriatric patients had been polypharmacy. The main features developed in the GESDUA application included a PIM-checking tool, potential drug interaction tool, and adjustment recommendation of drug used in patients with renal failure. The implementation phase of GESDUA had resulted in a 6.01% reduction in PIM prevalence ($p > 0.05$). The user satisfaction index for GESDUA was 78.63%, which was categorized as "satisfied."

The development of the GESDUA application had been necessary to reduce PIM rates in hospitals and to enhance healthcare professionals' knowledge. Further implementation on a broader and more targeted scale is needed to achieve a significant impact on reducing PIM among geriatric patients.

Keywords: potentially inappropriate medications (PIM), Beer's criteria, STOPP/START, geriatric, digital health