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AI-ENABLED MEDICATION SAFETY AND ADHERENCE PLATFORM DEPLOYABLE IN SOUTH KOREA: INTEGRATING NATIONAL PRESCRIPTION DATA AND OCR-CAPTURED OTC/SUPPLEMENTS

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Abstract

This study proposes a medication management platform designed for real-world deployment in South Korea, leveraging national prescription records (HIRA) and OCR-based capture of over-the-counter (OTC) medications and supplements to address polypharmacy and fragmented medication histories. Polypharmacy-related adverse events are often driven by incomplete medication lists, duplicate therapy, and unrecognized drug–drug interactions. We aim to develop and validate a Software-as-a-Service(SaaS)-based system that consolidates prescription and non-prescription intake into a unified medication profile and delivers personalized safety screening—including dose appropriateness, interaction/duplication checks, and daily maximum dose warnings—using individual characteristics (e.g., age, sex, height, weight).

Methods/Development plan:

We adopted a phased agile methodology comprising (i) MVP implementation, (ii) expansion of AI-driven safety modules, (iii) stability/security verification with a structured beta program, and (iv) commercialization supported by DevOps/MLOps.

Planned evaluation:

Primary endpoints will include medication list completeness (prescription + OTC/supplements), frequency and clinical relevance of detected safety alerts, and adherence metrics derived from reminder-confirmation logs. Secondary outcomes will assess user acceptability and workflow feasibility for scalable public SaaS deployment.

Keywords:

Polypharmacy, Medication Safety, Adherence, OCR, Prescription Claims Data, Clinical Decision Support, SaaS