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**Evaluasi Keselamatan Jalan Berdasarkan Data Historis Kecelakaan dan Kondisi Infrastruktur pada Jalan
Provinsi di Kabupaten Sleman**
Syafiiq Muhammad Ridlo, Ir. Mukhamad Rizka Fahmi Amrozi, S. T., M.Sc., Ph.D.
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

INTISARI

Keselamatan jalan pada ruas jalan provinsi menjadi isu penting karena memiliki karakteristik lalu lintas campuran dan aktivitas sisi jalan yang tinggi. Selain itu, tingginya mobilitas meningkatkan risiko kecelakaan pada lokasi rawan kecelakaan dan defisiensi infrastruktur jalan. Berdasarkan hal tersebut perlu dilakukan evaluasi kinerja keselamatan jalan dilakukan dengan pendekatan reaktif melalui data kecelakaan dan proaktif melalui penilaian infrastruktur. Tujuan penelitian yaitu menganalisis kronologi dan faktor penyebab kecelakaan, mengevaluasi kinerja keselamatan, menganalisis hubungan antara Angka Ekuivalen Kecelakaan (AEK) dan *Star Rating Score* (SRS), serta merumuskan rekomendasi peningkatan keselamatan jalan.

Metode penelitian dilakukan penilaian dengan metode AEK, rekonstruksi kecelakaan, evaluasi persyaratan teknis jalan, serta evaluasi kinerja jalan dengan metode iRAP *Star Rating* melalui ViDA Demonstrator. Analisis dilakukan pada segmen dengan kategori AEK tinggi, sedang, dan rendah. Penilaian iRAP dilakukan terhadap kondisi tepi jalan, badan jalan, persimpangan, volume lalu lintas dan pengguna jalan rentan, serta kecepatan operasional. Hubungan AEK dan SRS dianalisis menggunakan regresi linear, Spearman, serta uji perbedaan kelompok AEK.

Hasil penelitian menunjukkan kecelakaan dominan dipengaruhi konflik simpang dan akses samping, kecepatan tinggi, kurangnya rambu, dan aktivitas tepi jalan. Evaluasi teknis menunjukkan defisiensi pada rumaja, ruwasja, hambatan samping, dan fasilitas penyeberangan. Dari hasil iRAP, menunjukan risiko infrastruktur pada AEK rendah. Hasil uji statistik menunjukan hubungan yang kuat pada kelompok AEK sedang dan tinggi.. Rekomendasi diarahkan pengendalian kecepatan, penataan akses, rambu, marka, ruang tepi jalan dan fasilitas pengguna rentan.

Kata kunci: keselamatan jalan, AEK, iRAP, *Star Rating Score*.

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ABSTRACT

Road Safety on regional road sections has become an important issue due to the mixed traffic characteristics and high level of roadside activity commonly found along these roads. In addition, high mobility increases the risk of crashes, particularly at accident-prone locations and on road sections with infrastructure deficiencies. Therefore, an evaluation of Road Safety performance is necessary using both a reactive approach based on crash data and a proactive approach through infrastructure assessment. This study aims to analyze the chronology and causal factors of crashes, evaluate Road Safety performance, examine the relationship between the Accident Equivalent Number (AEK) and the Star Rating Score (SRS), and formulate recommendations for improving Road Safety.

The research method includes assessment using the AEK method, crash reconstruction, evaluation of road technical requirements, and Road Safety performance assessment using the iRAP Star Rating method through the ViDA Demonstrator. The analysis was conducted on road segments classified into high, medium, and low AEK categories. The iRAP assessment considered roadside conditions, carriageway conditions, intersections, traffic volume, vulnerable road users, and operating speed. The relationship between AEK and SRS was analyzed using linear regression, Spearman correlation, and group difference tests based on AEK categories.

The results show that crashes were predominantly influenced by conflicts at intersections and side accesses, high vehicle speeds, inadequate traffic signs, and roadside activities. The technical evaluation identified deficiencies in the road right-of-way, road supervision area, roadside friction, and pedestrian crossing facilities. The iRAP results indicate that infrastructure-related risks were also found in segments with low AEK values, suggesting the presence of latent safety risks. The statistical analysis shows a strong relationship between AEK and SRS in the medium and high AEK groups. The recommendations are directed toward speed management, access management, improvement of traffic signs and road markings, roadside space management, and the provision of facilities for vulnerable road users.

Keywords: Road Safety, AEK, iRAP, Star Rating Score.