

## **BAB V**

### **PENUTUP**

#### **V.1 Kesimpulan**

Hasil penelitian mengenai identifikasi *Safety Critical Events* (SCE) menggunakan pendekatan *Naturalistic Driving Study* (NDS) pada pengemudi Bus SATRIA Kota Kediri diperoleh kesimpulan sebagai berikut:

1. Hasil identifikasi jenis dan frekuensi SCE pada pengemudi Bus SATRIA menunjukkan bahwa terdapat 238 SCE yang telah dikelompokkan berdasarkan skenario kejadian. Jumlah tersebut terdiri atas 140 *speeding*, 88 *hard braking*, dan 10 *aggressive acceleration*. Hasil pada Rute 1 ditemukan 156 jenis SCE yang terdiri atas 99 *speeding*, 52 *hard braking*, dan 5 *aggressive acceleration*. Sedangkan pada Rute 2, ditemukan 82 jenis SCE yang terdiri atas 41 *speeding*, 36 *hard braking*, dan 5 *aggressive acceleration*. Jenis SCE yang paling dominan pada kedua rute adalah *speeding*, sehingga dapat disimpulkan bahwa perilaku kecepatan menjadi bentuk SCE yang paling sering muncul pada operasional Bus SATRIA.
2. Hasil identifikasi penyebab terjadinya jenis SCE ditemukan *speeding* paling banyak berkaitan dengan *Judgment Error* dan *Roadway Environment* karena SCE tersebut muncul ketika pengemudi memilih atau mempertahankan kecepatan pada kondisi jalan yang memungkinkan. *Hard braking* banyak muncul dengan penyebab *Judgment Error* dan *Interaction with Other Vehicles*, terutama ketika pengemudi harus merespons secara mendadak. Sementara itu, *aggressive acceleration* mayoritas disebabkan oleh *Judgment Error* dan *Roadway Environment*, tetapi jumlah SCE yang relative kecil menyebabkan pola ini lebih bersifat situasional.
3. Hasil analisis asosiasi menggunakan uji *Chi-Square* keseluruhan mendapatkan nilai  $p < 0,005$  menunjukkan bahwa terdapat hubungan antara jenis SCE dengan faktor penyebab pada kedua rute. Rute 1 menunjukkan seluruh faktor penyebab menunjukkan asosiasi yang signifikan dengan kekuatan hubungan kategori sedang, yaitu *Judgment Error* dengan nilai Cramer's  $V = 0,390$ , *Interaction with Other Vehicles* dengan nilai Cramer's  $V = 0,446$ , dan *Roadway Environment* dengan nilai

Cramer's  $V = 0,446$ . Rute 2 juga menunjukkan asosiasi pada ketiga faktor penyebab dengan nilai Cramer's  $V = 0,372$  untuk *Judgment Error*, Cramer's  $V = 0,693$  untuk *Interaction with Other Vehicles*, dan Cramer's  $V = 0,536$  untuk *Roadway Environment*. Faktor *Interaction with Other Vehicles* pada Rute 2 menjadi faktor yang paling kuat berasosiasi dengan jenis SCE, terutama pada jenis SCE *hard braking*. Temuan ini menegaskan bahwa SCE pada pengemudi Bus SATRIA bersifat multifaktorial.

4. Peta digital interaktif sebaran lokasi SCE disusun menggunakan platform ArcGIS dengan *data spot* SCE yang telah memiliki informasi koordinat, rute, jenis SCE, penyebab, dan skenario kejadian. Hasil pemetaan menunjukkan bahwa sebaran SCE tidak merata di seluruh ruas jalan, tetapi terkonsentrasi pada beberapa segmen tertentu. Berdasarkan metode kelas interval dengan klasifikasi risiko rendah, sedang, dan tinggi, terdapat tiga segmen yang masuk kategori *hotspot* tinggi, yaitu Jl. Penanggungan dengan 25 SCE, Jl. Veteran dengan 18 SCE, dan Jl. Durian dengan 17 SCE. Peta digital interaktif ini dapat digunakan untuk melihat lokasi kejadian secara lebih jelas, membedakan jenis SCE berdasarkan layer, serta mendukung penentuan prioritas rekomendasi keselamatan pada koridor operasional Bus SATRIA Kota Kediri.

## V.2 Saran

Saran yang diajukan berdasarkan hasil temuan penelitian yang telah dilakukan adalah sebagai berikut.

1. Pemerintah Kota Kediri dapat melakukan intervensi lingkungan jalan sebagai prioritas utama pada segmen jalan yang mencatat *rate* SCE tertinggi dan kejadian yang seluruhnya terjadi saat aktivitas lalu lintas rendah. Hal ini menunjukkan bahwa regulasi tanpa penegakan fisik tidak efektif mengubah perilaku pengemudi.
2. Dinas Perhubungan Kota Kediri dapat menyelenggarakan program pelatihan persepsi risiko bagi seluruh pengemudi Bus SATRIA dengan menggunakan 23 skenario SCE yang teridentifikasi dalam penelitian ini sebagai materi pembelajaran, mengingat seluruh kejadian *speeding* yang menyumbang 94% dari total SCE disebabkan

oleh *Judgment Error* yang bersumber dari kesalahan penilaian pengemudi.

3. Bagi penelitian selanjutnya diharapkan memperluas cakupan instrumen GPS *smartphone* dengan *OBD-II data logger* untuk meningkatkan presisi pengukuran kecepatan, serta menambahkan analisis temporal berbasis durasi berkendara guna menghasilkan temuan yang lebih representatif dan komprehensif sebagai dasar pengembangan kebijakan keselamatan operasional Bus SATRIA Kota Kediri.

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