

Table A1. Sample characteristics and study aims of all studies included in the review, in alphabetical order of the first author.

#	Study	Methodology	Geographical focus	Sample size	Age distribution	Gender Ratio (m/f/d)	Study aim
1.	(Anke et al., 2022)	Judging others	Germany	179	M = 46.0 (SD = 13.3)	73%/27%/0%	Study investigates to what extent rule violations of cyclists/E-scooter-drivers are attributed to dispositional and situational factors, depending in/outgroup status.
2.	(Barić et al., 2018)	Observation	Croatia	316	4 age-groups; 26-60y: 73%	47%/53%/0%	Study aims to identify reasons for risky behavior at urban level railway crossings.
3.	(Baumanis et al., 2024)	Judging others	USA	1,089	7 age-groups: 35-44y: 25%	56%/42%/2%	Study aims to understand motorists', cyclists', and pedestrians' perceptions of separate bicycle signals in relation to comfort, compliance, and safety.
4.	(Beanland et al., 2016)	Self-report	Australia	42	M = 41.0 (SD = 11.8)	69%/31%/0%	Study aims to explore the information use and decision-making at rail level crossings of different road user groups.
5.	(Bernhoft & Carstensen, 2008)	Self-report	Denmark	1,905	2 age-groups 70+: 53%	60.2%/39.8%/0%	Study aims "to increase knowledge regarding older pedestrians' and cyclists' behavior in traffic and their preferences as to traffic conditions relating to safety and comfort [...]." (p. 84)
6.	(Bishop et al., 2023)	Self-report	United Kingdom	191	M = 57.0 (SD = 14.0)	81%/19%/0%	Study aims "to examine the contributions of experienced cyclists' attentional control, cycling experience and cycling self-efficacy to their on-road behaviors [...]." (p. 58)
7.	(Boudart et al., 2015)	Observation	USA	1,806	unspecified	unspecified	Study aims to examine how roadway information could affect the user behavior and compliance with traffic signals.
8.	(Brezina & Hildebrandt, 2016)	Observation	Austria	3,141	3 age-groups 25-65y: 77.9%	62.7%/36.7%/0.6%	Study aims to measure the influence of the transport infrastructure design features on the prevalence of red-light violations.
9.	(Casello et al., 2017)	Observation	Canada	1,650	unspecified	unspecified	Study aims to determine the degree to which cyclists travelling through an intersection do so (1) legally and (2) consistent with the intersection design.
10.	(Chaloux & El-Geneidy, 2019)	Own behavior estimate	Canada	1,329	unspecified	unspecified	Study aims to investigate the rationalization of rule-breaking, with a focus on the question of who breaks the rules and how it's possible to increase rule compliance.
11.	(De Angelis et al., 2020)	Self-report	Italy	298	M = 42.5 (SD = 14.7)	59.7%/39.3%/1.0%	Study aims to investigate the influence of smartphone-specific violations and errors on the probability of near and actual crashes, including possible gender differences.
12.	(DeVeause et al., 1999)	Observation	USA	434	unspecified	unspecified	Study explores the compliance of bicyclists with stop signs.
13.	(Detzer et al., 2014)	Observation	Germany	126	unspecified	unspecified	The study examines the behavior of cyclists at intersections.
14.	(Fabbri & Hoepfner, 2018)	Own behavior estimate/Observation	Germany	309/445	2 age groups; 50y+: 38% (Observation)	50%/50%/0%	Study aims to assess how often cyclists run red lights in the presence of children, and conduct a vignette experiment to verify the motives underlying the cyclists' decision
15.	(Farris et al., 1997)	Observation	USA	1,793	unspecified	unspecified	Study assesses the rule compliance of helmeted vs. non-helmeted bicyclists.

#	Study	Methodology	Geographical focus	Sample size	Age distribution	Gender Ratio (m/f/d)	Study aim
16.	(Fraboni et al., 2016)	Observation	Italy	1381	3 age-groups 31-50y: 40.6%	51.0%/48.7%/0.3%	Study aims to investigate the behavior of cyclists (e.g. traffic light violations) at intersections, also considering the possible influence of the presence of others.
17.	(Goodno et al., 2013)	Observation	USA	unspecified	unspecified	unspecified	Study evaluates how well facilities worked for cyclists, motorists, and pedestrians in terms of safety and level of service (LOS) and how they affected behavior and attitudes.
18.	(Grabušić & Barić, 2023)	Observation	Croatia	unspecified	unspecified	unspecified	Study analyses illegal railway level crossing of pedestrian and cyclists.
19.	(Hamann & Peek-Asa, 2017)	Naturalistic	USA	20	2 age-groups 11-13y: 50% 18+: 50%	50%/50%/0%	The study assesses the rates and the attributes of errors, violations, near crashes and crashes of child and adult bicyclists.
20.	(Haworth & Debnath, 2013)	Crash	Australia	2,790	6 age-groups 25-39y: 27.6%	79.1%/20.9%/0%	The study aims to compare the characteristics of bicycle and motorcycle crashes with vehicles.
21.	(Huemer, 2018)	Self-report	Germany	198	M = 33.8, SD = 13.1	53.5%/46.5%/0%	The study aims to examine how factors commonly found in traffic research influence cyclists' intentions to violate traffic rules
22.	(Huemer et al., 2022)	Observation	Germany	4,145	3 age-groups 25-64y: 63.7%	61.3%/38.1%/0.62%	The study aims to estimate of the frequency of secondary tasks, use of additional safety equipment, and rule violations while riding bicycles and e-scooters in Germany.
23.	(Johnson et al., 2011)	Observation	Australia	4,225	unspecified	73.6%/26.4%/0%	The study aims to examine the rate, characteristic and risks of cyclists infringing red light.
24.	(Johnson et al., 2013)	Self-report	Australia	2,061	3 age-groups 30-49y: 59.1%	68.6%/31.3%/0.1%	The study analyses the behavioral, attitudinal and traffic infrastructure aspects leading to cyclists infringing red lights.
25.	(Kassim et al., 2017)	Observation	Canada	984	unspecified	unspecified	Study focuses on modelling cyclists' speed at traffic intersections in urban areas.
26.	(Khattak & Luo, 2011)	Observation	USA	376	unspecified	unspecified	Study examines the violations of pedestrian and cyclists at a Highway-Rail Grade Crossing.
27.	(Kummeneje & Rundmo, 2020)	Self-report	Norway	426	M = 50.6 (SD = 12.6)	66%/34%/0%	Study aims to investigate whether cyclists' attitudes, risk perceptions, worry, risk tolerance, safety priority, and accident involvement were related to traffic rule violations when cycling.
28.	(Lange et al., 2011)	Observation	Germany	1,690	unspecified	57%/43%/0%	The study investigates cyclists' behavior at signalized intersections as a result of multiple stimulus discrimination.
29.	(Lange et al., 2016)	Observation	Germany	2269	unspecified	50%/50%/0%	The study examines the effect of incongruent phases of subsequent traffic light signals.
30.	(Langford et al., 2015)	Naturalistic	USA	100	unspecified	unspecified	This study describes the results of a naturalistic GPS-based safety study comparing regular bicycle and e-bike riders.
31.	(Lardelli-Claret et al., 2003)	Crash	Spain	22,814	unspecified	unspecified	The study investigates the presence of risk compensation mechanism in relation to voluntary helmet use in Spain.
32.	(Lavetti & McComb, 2014)	Self-report; Observation	USA	120	Self-report: M = 43.5 (no SD provided); Observation: unspecified	unspecified	The study investigates cyclists' rule violation rates and possible influential factors.

#	Study	Methodology	Geographical focus	Sample size	Age distribution	Gender Ratio (m/f/d)	Study aim
33.	(Leschik et al., 2024)	Observation	Germany	19,352	unspecified	75%/25%	Study aims to quantify the traffic behavior of cyclists interacting with wrong-way cyclists.
34.	(Li et al., 2022)	Self-report	Australia	347	M = 38.7 (SD = 15.1)	67.5%/31.9%/0.6%	Study investigates the prevalence of positive and risky cycling behavior among three countries and examine their relationships with cyclist characteristics.
35.	(Lind et al., 2021)	Observation	Spain	10,145	unspecified	unspecified	Study assesses the compliance with traffic rules and intended intersection design at intersections and factors that influence rule compliance.
36.	(Loskorn et al., 2013)	Observation	USA	951	unspecified	unspecified	The study wants to investigate the effects of bicycle boxes on motorists and bicyclists focusing on safety aspects.
37.	(McIlroy et al., 2022)	Self-report	United Kingdom	428	Men/Female/Diverse: M = 47.5/41.8/40.3 (SD = 13.9/11.7/12.4)	51.6%/47.7%/0.7%	The study assesses the CBQ for the UK and is exploring the relationships between cycling behavior and walking, helmet use and cycling proficiency.
38.	(Micucci & Sangermano, 2020)	Observation	Italy	463	unspecified	58%/42%/0%	The study assesses cyclists' behaviors in relation to kinematics.
39.	(Mulvihill et al., 2016)	Self-report	Australia	42	M = 39.9 (SD = 12.9)	57%/43%/0%	The study aimed to gain insights into decision making processes of different road user types at rail level crossings.
40.	(Nygårdhs, 2021)	Naturalistic	Netherlands	54	M = 35.0 (SD = 15.0)	57.7%/42.3%/0%	“This study aimed to explore adaptive behaviors of cyclists towards a CDT [Count down timer] to green traffic light, conducted as a before-after study in real traffic.” (p. 1)
41.	(O’Hern et al., 2020)	Self-report	Australia	615	M = 42.5 (SD = 11.8)	68.9%/31.1%	The study aimed to use the cycling behavior questionnaire in Australia.
42.	(O’Hern et al., 2021)	Self-report	Australia	1,408	M = 50.4 (SD = 12.7)	70.1%/29.0%/0.9%	The study investigates how positive behaviors, and attitudes regarding knowledge of traffic norms and risk perception influence crash quantity and severity.
43.	(O’Hern et al., 2022)	Self-report	Finland	213	M = 43.7 (SD = 12.0)	51.6%/45.1%/3.3%	Study investigates how factors presented in various scales on cycling behavior, risk perception and anger influence crash involvement among a cohort of Finnish bicycle riders
44.	(Piatkowski et al., 2017)	Self-report	USA	14,341	7 age-groups 25-34y: 33.9%	65%/35%/0%	This study analyses the behavioral norms while cycling in mixed-traffic conditions.
45.	(Prati et al., 2017)	Crash	Italy	49,621	7 age-groups 25-44y: 29.3%	68.3%/31.7%	The study identifies cycle crash patterns.
46.	(Puchades et al., 2018)	Self-report	Italy	264	M = 44.7 (SD=14.1)	65.5%/34.5%/0%	The study investigates the effect of errors, general violations and smartphone-related violations on the probability of near or actual bicycle crashes.
47.	(Richardson & Caulfield, 2015)	Observation; Self-report; Judging others	Ireland	5,101	Observation: unspecified Self-report: 6 age-groups; 36-49y: 35%	Observation: 69%/31%/0%; Self-report: 65%/35%/0%	This research examines the behavior of cyclists in Dublin City with specific regard to red light running.

#	Study	Methodology	Geographical focus	Sample size	Age distribution	Gender Ratio (m/f/d)	Study aim
48.	(Russo et al., 2021)	Observation	USA	285	5 age-groups 16-29y: 60.7%	80%/20%/0%	This study analyzes the prevalence of pedestrians and bicyclists violating warnings at railway crossings and factors associated with such behavior.
49.	(Schleinitz et al., 2019)	Naturalistic	Germany	88	Conventional/Pedelec cyclists: M = 51.5/54.4 (SD = 17.2/16.7)	64%/36%/0%	The study examines the red-light infringement depending on bicycle type and infrastructure design.
50.	(Schröter et al., 2024)	Observation	Germany	10,531	unspecified	unspecified	The study analyses the effects of “Right Turn On Red” on cyclists' rule compliance and road conflicts.
51.	(Shaw et al., 2015)	Self-report	Australia	770	3 age-groups 30-49y: 61.7%	67%/33%/0%	The study investigates the compliance and reasons for infringing road rules by transport cyclists.
52.	(Szczeraszek & Klusek, 2019)	Observation	Poland	480	5 age-groups 19-34y: 41%	54%/46%/0%	The study wants to assess the level of compliance with red light by pedestrians, cyclists and motorists.
53.	(Trinka, 1985)	Observation	USA	6,165	unspecified	unspecified	The study examined the signal compliance of bicyclists.
54.	(Twaddle & Busch, 2019)	Observation	Germany	4,710	unspecified	unspecified	The study aims to identify infrastructure and traffic signal control that encourages rule-conform and safe behavior of cyclists.
55.	(Useche, O'Hern, et al., 2022)	Judging others	Spain	950	3 age-groups <25y: 49.3%	Study 1: 44.7%/55.3%/0% Study 2: 52.2%/47.8%/0%	The study compares the external-rated behavior of cyclists and e-scooter riders.
56.	(Useche et al., 2021)	Self-report	Belgium	1,897	M = 41.7 (SD = 11.7)	50.9%/48.7%/0.4%	The study validates the Cycling Behavior Questionnaire in French and Dutch and analyze the behavior, errors and violations of Belgian cyclists.
57.	(Volgemute et al., 2024)	Self-report	Latvia	299	M = 32.8 (SD = 13.2)	57.9%/41.5%/0.7%	“The objective of this study was to assess the relationships among self-reported cyclists' behavior, traffic safety literacy, and their cycling crash involvement rates.” (p. 1)
58.	(Webman et al., 2013)	Crash	USA	374	Helmet/Non-Helmet: M = 32.73/31.84 (SD = 12.41/13.23)	Helmet: 78.5%/21.5%/0%	The study aims to assess demographical, behavioral and health related accident factors depending on helmet use.
59.	(Zheng et al., 2020)	Observation	USA	397	unspecified	79%/21%/0%	The focus of this paper is to investigate pedestrian and bicyclist violations at a dual-quadrant gated highway-rail grade crossings.