Collisions and near accidents between pedestrians and cyclists

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Aim and method

▪ Research aims
  • Investigate the characteristics of collisions and near accidents between pedestrians and cyclists
  • Estimate the frequency of near accidents
  • Investigate cyclists’ and pedestrians’ sense of safety in traffic

▪ Method
  • Online survey, directed to Finnish cities with over 100,000 population
Finnish traffic context

- Typical cyclist/pedestrian paths in Finnish urban areas
  - Pedestrian paths (cycling forbidden for those over the age of 12)
  - Shared paths where pedestrians and cyclists share space
  - Shared paths where pedestrians and cyclists are separated side by side

(Finnish Transport Infrastructure Agency, 2020)
Characteristics of respondents

- **Sample size:** 1,046
- **Gender split:** 51.8% male and 48.2% female
- **Age distribution:** 15–17 (0.5%), 18–24 (1.9%), 25–34 (9.7%), 35–49 (20.3%), 50–64 (37.9%), 65–79 (29.8%)
- **Road user type:** 1,043 regular pedestrians and 649 regular cyclists
  - All but three cyclist respondents also provided answers from a pedestrian perspective
Number of collisions

- Experienced by respondents in the previous three years
- Detailed accounts of 21 collisions

In the collision, were you a pedestrian or cyclist?

- Cyclist: 3
- Pedestrian: 18
Collision event descriptions

A cyclist and pedestrian collided when...

- travelling in the same direction: 7
- travelling perpendicular to each other: 5
- travelling in opposite directions: 5

A cyclist collided with a stationary pedestrian: 2

- the other party was turning: 1
- Other: 1
Collision road environments

- Pedestrian path: 7
- Shared pedestrian and bicycle path: 6
- Pedestrian crossing: 4
- Shared pedestrian and bicycle path with separate lanes: 3
- Junction of a pedestrian and bicycle path: 1
Number of near accidents

- Experienced by respondents in the previous three years
- Roughly a third of respondents had experienced a near accident
  - Detailed accounts of 637 near accidents
- Near accident involvement:
  - 1/3 as a cyclist
  - 2/3 as a pedestrian

How many near accidents between a pedestrian and cyclist have you experienced? (n=354)
Near accident event descriptions

A pedestrian and cyclist almost collided when...

- travelling in the same direction: 43.6%
- travelling in opposite directions: 19.5%
- travelling perpendicular to each other: 15.8%
- one party was turning: 13.4%
- the cyclist was passing a stationary pedestrian: 5.6%
- a pedestrian's dog moved in front of the cyclist: 2.1%

(n=637)
Near accident road environments

- Shared pedestrian and bicycle path: 40.8%
- Pedestrian path: 21.0%
- Shared pedestrian and bicycle path with separate lanes: 15.2%
- Pedestrian crossing: 6.6%
- Junction of a pedestrian and bicycle path: 6.3%
- Bicycle lane: 6.0%
- Other: 4.1%

% (n=637)
Factors contributing to near accidents

- Directed at pedestrian behaviour (n=562):
  - Unexpected manoeuvre (33.5%)
  - Observation error (27.4%)
  - Mobile phone use (15.8%)

- Directed at cyclist behaviour (n=988):
  - Excessive speed (38.4%)
  - Observation error (18.7%)
  - Rule violation (14.9%)
Sense of safety

- Both pedestrians and cyclists felt safer and were more willing to use shared pedestrian and bicycle paths with separate lanes than shared paths without separate lanes.
- Cyclists generally agreed that other cyclists were considerate toward them, but felt that pedestrians were not as considerate.
- Pedestrians agreed that other pedestrians were considerate toward each other, but strongly disagreed that cyclists were considerate toward them.
Conclusions

- Near accidents between pedestrians and cyclists are very common, but collisions are rare
  - Near accidents roughly 50 times more frequent than collisions
- Shared pedestrian and bicycle paths are problematic from a safety perspective
  - Space separation appears to reduce near accidents and collisions considerably
  - Respondents considered space separation safer and preferable to space sharing
'Traffic Safety 2025’ consortium project

https://www.vtt.fi/sites/tl2025/en
Thank you!

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