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Cyclists' perception of maintenance and operation of cycling infrastructure – results from a Norwegian survey

Provisionally accepted The final, formatted version of the article will be published soon. Notify me

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The Norwegian authorities want to limit the extent of car use in city areas to existing levels. Such a limitation would help combat climate change, improve health of citizens, and alleviate congestion. This implies that any further increase in transport needs will have to be met by walking, cycling and use of public transport. Reaching this ambitious goal requires knowledge about cyclists' preferences concerning operation and maintenance (M&O) of roads and foot/cycle paths. Previous research suggests that M&O have great implications for travel mode choice, bicycle route/path choice, safety, security, and comfort. With the need to serve bicyclists of all ages and genders, this study additionally explores which M&O of roads and foot/cycle the different demographic groups perceive positively or negatively.

This article reports results from a nationwide survey in the summer of 2019. 2376 cyclists across Norway (55% male; 29% <40; 17% >60) participated to determine the cyclists' perceptions about year-round M&O of roads and foot/cycle paths. Respondents, rather than being randomly selected, completed an internet-linked survey. The variables included maintenance of foot/cycle paths in terms of salt and snow plowing and operation and maintenance of roads in terms of glass, holes/bumps, and conditions. Our results suggest that female cyclists suffer more from adverse conditions than do males. We also find that males are more likely to cycle during winter, which is an additional indication that adverse conditions affect women and men differently.

TILFELDIGE NORDMENN GLOR PÅ GRUS OG HULL

ANALYSER FRA EN LAAAAAAAAAAAAAAANG UNDERSØKELSE

DRIFT:
DAGLIG BRUK
MÅKING
FEIING

VEDLIKEHOLD:
SKILTING
HULL
LENGRE PERSPEKTIV

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Hvorfor

Hva

Hva

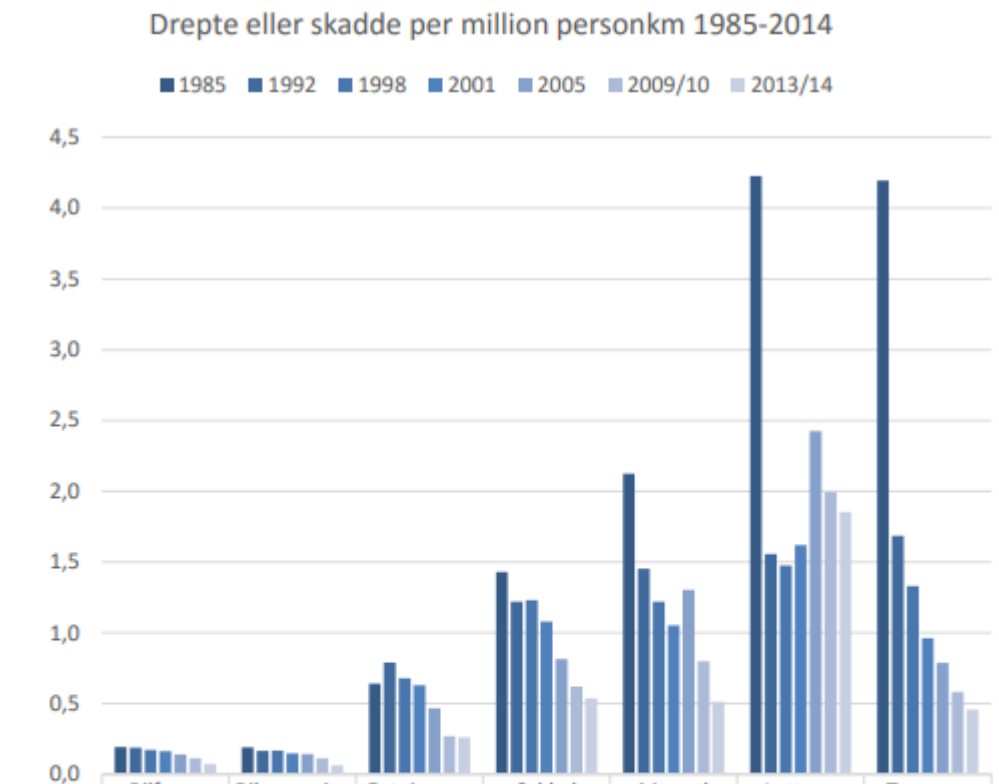
Hva

Hvorfor

- Nullvekstmålet
  - Hårete
- Høyere risiko

Hvo

- Nu
  -
- Hø



	Bilfører	Bilpassasjer	Fotgjenger	Sykkel	Moped	Lett mc	Tung mc
1985	0,19	0,19	0,64	1,43	2,12	4,23	4,20
1992	0,19	0,17	0,79	1,22	1,45	1,56	1,69
1998	0,17	0,17	0,68	1,23	1,22	1,48	1,33
2001	0,16	0,15	0,63	1,08	1,05	1,62	0,96
2005	0,14	0,14	0,47	0,82	1,30	2,43	0,79
2009/10	0,11	0,11	0,27	0,62	0,80	1,99	0,58
2013/14	0,07	0,06	0,26	0,54	0,51	1,85	0,46

Figur S3 Drepte eller skadde per million personkilometer i 1985, 1992, 1998, 2001, 2005, 2009/10 og 2013/14 fordelt på trafikantgrupper.

Hv

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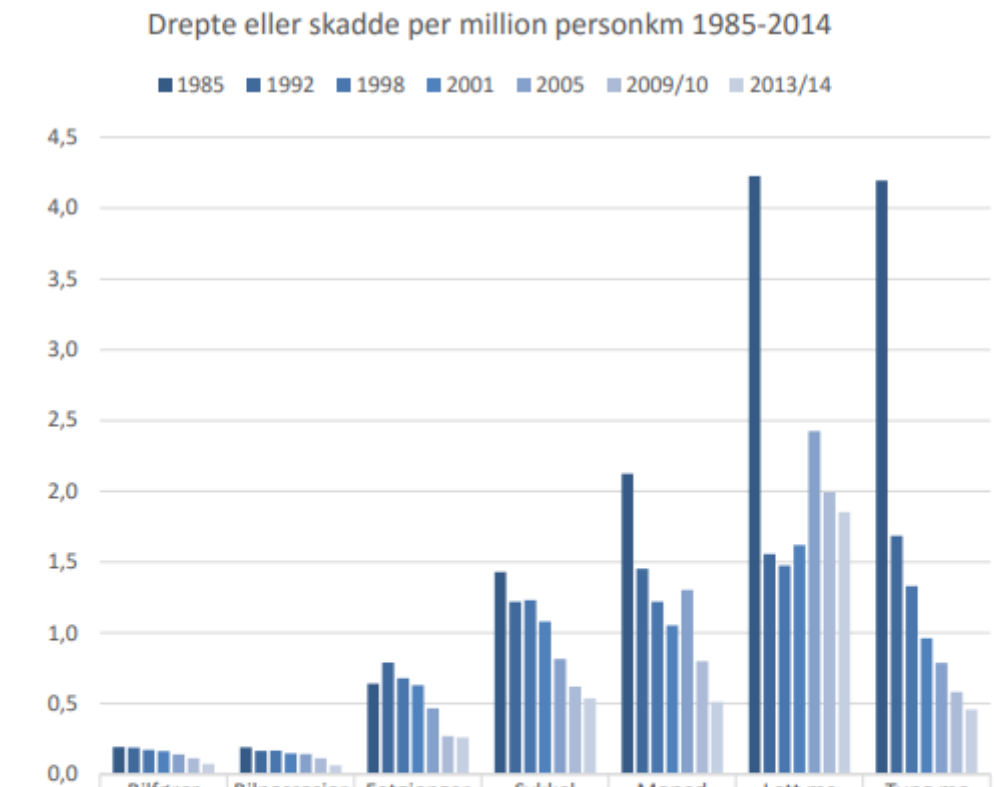


	Bilfører	Bilpassasjer	Fotgjenger	Sykkel	Moped	Lett mc	Tung mc
1985	0,19	0,19	0,64	1,43	2,12	4,23	4,20
1992	0,19	0,17	0,79	1,22	1,45	1,56	1,69
1998	0,17	0,17	0,68	1,23	1,22	1,48	1,33
2001	0,16	0,15	0,63	1,08	1,05	1,62	0,96
2005	0,14	0,14	0,47	0,82	1,30	2,43	0,79
2009/10	0,11	0,11	0,27	0,62	0,80	1,99	0,58
2013/14	0,07	0,06	0,26	0,54	0,51	1,85	0,46

Figur S3 Drepte eller skadde per million personkilometer i 1985, 1992, 1998, 2001, 2005, 2009/10 og 2013/14 fordelt på trafikantgrupper.

TØI rapport 1499/2016

Ingeborg Storesund Hesjevoll
Rikke Ingebrigtsen

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Bygg, så sykler de kanskje

En litteraturstudie av betydningen av separering, sammenheng og trygghet for sykling

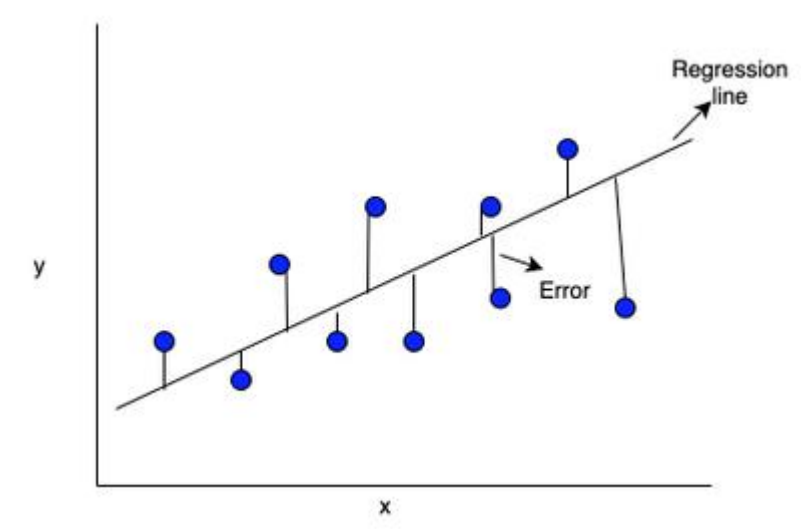
NORÐR + VEGR

DET VIL SI 'NORDVEIEN' ELLER 'VEIEN MOT NORD

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning


Strongly agree
Agree
Disagree
ly disagree

N = 2,376.


Regression line
Error
y
x

		Accident where conditions contributed OR	SIG
Areas (ref: Other)	Akershus	1.53	
	Buskerud	1.22	
	Oslo	1.29	
	Bergen	0.84	
	Jæren	2.04	*
	Tromsø	2.60	*
	Trondheim	1.44	
Gender (ref: Male)	Female	1.32	
Age groups (ref: <40)	40-59	1.15	
	>60	0.74	
Bike type (ref: Other)	Hybrid/MTB	0.93	
	Racer	0.91	
	E-bike	1.64	
Often cycled		1.72	*
Winter cycling		1.45	
Nagelkerke R2		*0.095*	


TØI rapport 1625/2018

Ole Jørgen Johansson
Aslak Fyhri

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Miniscenario: Økt omfang av elsykler

		Accident where conditions contributed		Too much salt on foot and cycle paths	
		OR	SIG	OR	SIG
Areas (ref: Other)	Akershus	1.53		1.10	
	Buskerud	1.22		1.22	
	Oslo	1.29		2.60	**
	Bergen	0.84		2.27	**
	Jæren	2.04	*	1.36	
	Tromsø	2.60	*	1.47	
	Trondheim	1.44		2.87	**
Gender (ref: Male)	Female	1.32		0.72	*
Age groups (ref: <40)	40-59	1.15		0.86	
	>60	0.74		0.89	
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93	
	Racer	0.91		0.84	
	E-bike	1.64		1.17	
Often cycled		1.72	*	1.29	
Winter cycling		1.45		0.87	
Nagelkerke R2		*0.095*		*0.068*	

		Accident where conditions contributed		Too much salt on foot and cycle paths		Snow plowing on foot and cycle paths		Shar
		OR	SIG	OR	SIG	OR	SIG	
Areas (ref: Other)	Akershus	1.53		1.10		1.34		
	Buskerud	1.22		1.22		0.55		
	Oslo	1.29		2.60	**	2.37	**	
	Bergen	0.84		2.27	**	1.71	*	
	Jæren	2.04	*	1.36		4.01	**	
	Tromsø	2.60	*	1.47		0.84		
	Trondheim	1.44		2.87	**	2.23	**	
Gender (ref: Male)	Female	1.32		0.72	*	0.78	*	
Age groups (ref: <40)	40-59	1.15		0.86		1.02		
	>60	0.74		0.89		1.04		
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93		0.73		
	Racer	0.91		0.84		0.83		
	E-bike	1.64		1.17		0.71		
Often cycled		1.72	*	1.29		0.72	*	
Winter cycling		1.45		0.87		1.61	**	
Nagelkerke R2		*0.095*		*0.068*		*0.112*		

		Accident where conditions contributed		Too much salt on foot and cycle paths		Snow plowing on foot and cycle paths		Shards of glass on the road	
		OR	SIG	OR	SIG	OR	SIG	OR	SIG
Areas (ref: Other)	Akershus	1.53		1.10		1.34		1.22	
	Buskerud	1.22		1.22		0.55		0.83	
	Oslo	1.29		2.60	**	2.37	**	0.97	
	Bergen	0.84		2.27	**	1.71	*	1.54	*
	Jæren	2.04	*	1.36		4.01	**	1.31	
	Tromsø	2.60	*	1.47		0.84		0.61	**
	Trondheim	1.44		2.87	**	2.23	**	1.19	
Gender (ref: Male)	Female	1.32		0.72	*	0.78	*	1.05	
Age groups (ref: <40)	40-59	1.15		0.86		1.02		0.98	
	>60	0.74		0.89		1.04		1.24	
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93		0.73		1.07	
	Racer	0.91		0.84		0.83		1.31	
	E-bike	1.64		1.17		0.71		0.91	
Often cycled		1.72	*	1.29		0.72	*	1.11	
Winter cycling		1.45		0.87		1.61	**	0.89	
Nagelkerke R2		*0.095*		*0.068*		*0.112*		*0.033*	

		Accident where conditions contributed		Too much salt on foot and cycle paths		Snow plowing on foot and cycle paths		Shards of glass on the road		Holes and bumps on the road	
		OR	SIG	OR	SIG	OR	SIG	OR	SIG	OR	SIG
Areas (ref: Other)	Akershus	1.53		1.10		1.34		1.22		0.87	
	Buskerud	1.22		1.22		0.55		0.83		0.69	
	Oslo	1.29		2.60	**	2.37	**	0.97		1.39	*
	Bergen	0.84		2.27	**	1.71	*	1.54	*	1.35	
	Jæren	2.04	*	1.36		4.01	**	1.31		0.56	**
	Tromsø	2.60	*	1.47		0.84		0.61	**	1.36	*
	Trondheim	1.44		2.87	**	2.23	**	1.19		1.47	*
Gender (ref: Male)	Female	1.32		0.72	*	0.78	*	1.05		1.32	*
Age groups (ref: <40)	40-59	1.15		0.86						0.77	*
	>60	0.74		0.89						0.59	**
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93						1.17	
	Racer	0.91		0.84						1.58	*
	E-bike	1.64		1.17						1.72	**
Often cycled		1.72	*	1.29						1.48	**
Winter cycling		1.45		0.87						0.71	**
Nagelkerke R2		*0.095*		*0.068*						*0.079*	

		Accident where conditions contributed		Too much salt on foot and cycle paths		Snow plowing on foot and cycle paths		Shards of glass on the road		Holes and bumps on the road		Forfeit cycling due to poor conditions	
		OR	SIG	OR	SIG	OR	SIG	OR	SIG	OR	SIG	OR	SIG
Areas (ref: Other)	Akershus	1.53		1.10								0.98	
	Buskerud	1.22		1.22								3.03	**
	Oslo	1.29		2.60	**							1.87	**
	Bergen	0.84		2.27	**							1.27	
	Jæren	2.04	*	1.36								0.42	**
	Tromsø	2.60	*	1.47								0.86	
	Trondheim	1.44		2.87	**							0.93	
Gender (ref: Male)	Female	1.32		0.72	*							1.29	*
Age groups (ref: <40)	40-59	1.15		0.86								0.68	**
	>60	0.74		0.89								0.41	**
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93								0.89	
	Racer	0.91		0.84								0.83	
	E-bike	1.64		1.17		0.71		0.91		1.72	**	0.82	
Often cycled		1.72	*	1.29		0.72	*	1.11		1.48	**	0.57	**
Winter cycling		1.45		0.87		1.61	**	0.89		0.71	**	0.42	**
Nagelkerke R2		*0.095*		*0.068*						*0.079*		*0.177*	

OPPSUMMERING

- Selv-seleksjon
  - Generelt problem
- Eldre har det bra
- Forbedringspotensiale
  - ~30% ville syklet mer
- Dårlig D&V = Mindre trygghet
  - Bil erstatter sykling
- Kvinner mer utsatt

Fin

		Step 1			Step 2			Step 3	
		OR	SIG		OR	SIG		OR	SIG
Areas	Akershus	0.91			0.90			0.83	
(ref: Other)	Bergen	1.65			1.70			1.60	
	Buskerud	0.61			0.46	*		0.49	*
	Jæren	1.88			1.75	*		1.49	
	Oslo	1.64			1.24			1.12	
	Trondheim	1.56			1.02			0.96	
	Tromsø	0.78			0.72			0.73	
Gender									
(ref: Male)	Female	0.72	*		0.71	*		0.71	*
Age groups	40-49	1.34			1.32			1.30	
(ref: <40)	50-59	1.20			1.24			1.25	
	>60	0.98			0.93			0.93	
Bike type	Hybrid	1.87	*		1.50			1.55	
(ref: Other)	MTB	1.40			1.41			1.43	
	Racer	1.57			1.36			1.37	
	E-bike	1.58	*		1.14			1.18	
Often cycled		-			9.135	**		9.60	**
Too much salt		-			-			0.84	
Satisfied with snow plowing		-			-			1.65	**
Nagelkerke R2		0.061			0.288			0.300	

Table 3. Hierarchical logistic regression model predicting winter cycling in three steps. Note: OR=Odds ratio (EXP(B)). *p<0.05, **p<0.001.