DRIFT OG VEDLIKEHOLD FOR SYKLISTER

DEL AV STATENS VEGVESENS F&U-PROGRAM «BEVEGELSE»

Ole Aasvik, 9.6.21.
Torkel Bjørnskau

ORIGINAL RESEARCH article

Front. Psychol. | doi: 10.3389/fpsyg.2021.696317

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


Ole Aasvik[1*] and Torkel Bjørnskau[1]

[1]Institute of Transport Economics, Norway

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.

DRIFT:
DAGLIGE TILTAK
SNØRYDDING/BRØYTING

VEDLIKEHOLD:
LENGRE PERSPEKTIV
OPPRETTHOLDE VEGSTANDARD

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

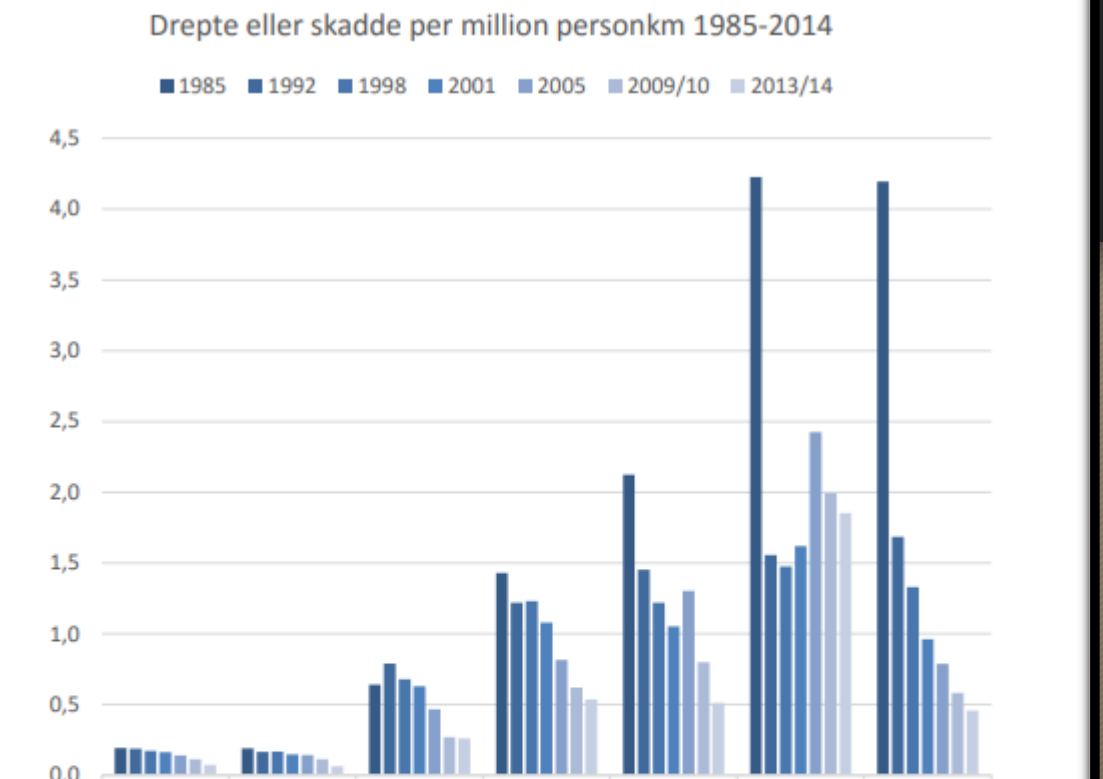
Hva
Hvorfor
Hvordan
Hva

Hvorfor

- Nullvekstmålet
  - hårete
- Høyere risiko

Hv

- N
- H

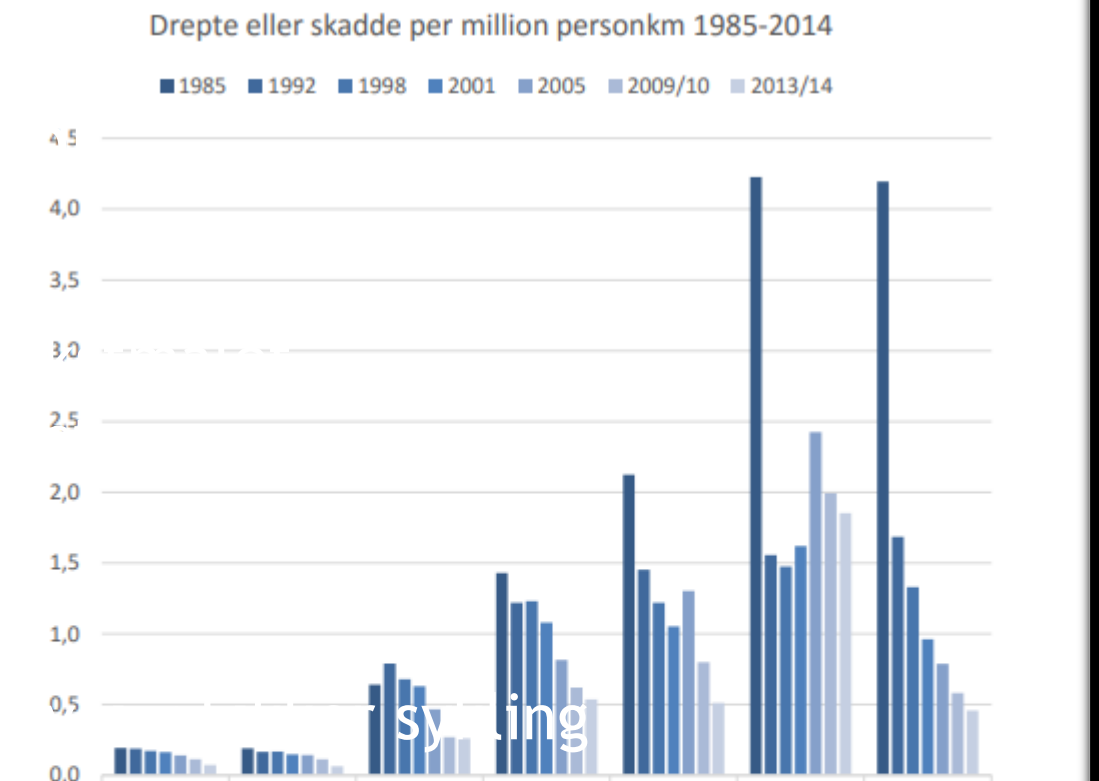


	Bilfører	Bilpassasjer	Fotgjenger	Sykkel	Moped	Lett mc	Tung mc
1985	0,19	0,19	0,64	1,43	2,12	4,23	4,20
1992	0,19	0,17	0,79	1,22	1,45	1,56	1,69
1998	0,17	0,17	0,68	1,23	1,22	1,48	1,33
2001	0,16	0,15	0,63	1,08	1,05	1,62	0,96
2005	0,14	0,14	0,47	0,82	1,30	2,43	0,79
2009/10	0,11	0,11	0,27	0,62	0,80	1,99	0,58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

Hvo

- Nul
- Høy
- Syk
- Syk



	Bilfører	Bilpassasjer	Fotgjenger	Sykkel	Moped	Lett mc	Tung mc
1985	0,19	0,19	0,54	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

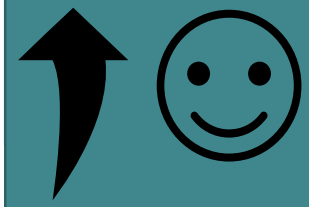
NORWAY

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

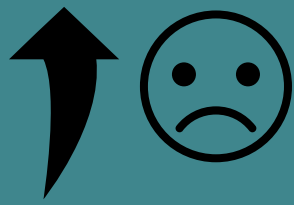
		Accident where conditions contributed	
		OR	SIG
Areas (ref: Other)	Akershus	1.53	
	Buskerud	1.22	
	Oslo	1.29	
	Bergen	0.84	
	Jæren	2.04	*
	Tromsø	2.60	*
	Trondheim	1.44	
Gender (ref: Male)	Female	1.32	
Age groups (ref: <40)	40-59	1.15	
	>60	0.74	
Bike type (ref: Other)	Hybrid/MTB	0.93	
	Racer	0.91	
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

		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	
		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		1.02		0.98		0.77	*
	>60	0.74		0.89		1.04		1.24		0.59	**
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93		0.73		1.07		1.17	
	Racer	0.91		0.84		0.83		1.31		1.58	*
	E-bike	1.64		1.17		0.71		0.91		1.72	**
Often cycled		1.72	*	1.29		0.72	*	1.11		1.48	**
Winter cycling		1.45		0.87		1.61	**	0.89		0.71	**
Nagelkerke R2		*0.095*		*0.068*		*0.112*		*0.033*		*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		1.34		1.22		0.87		0.98	
	Buskerud	1.22		1.22		0.55		0.83		0.69		3.03	**
	Oslo	1.29		2.60	**	2.37	**	0.97		1.39	*	1.87	**
	Bergen	0.84		2.27	**	1.71	*	1.54	*	1.35		1.27	
	Jæren	2.04	*	1.36		4.01	**	1.31		0.56	**	0.42	**
	Tromsø	2.60	*	1.47		0.84		0.61	**	1.36	*	0.86	
	Trondheim	1.44		2.87	**	2.23	**	1.19		1.47	*	0.93	
Gender (ref: Male)	Female	1.32		0.72	*	0.78	*	1.05		1.32	*	1.29	*
Age groups (ref: <40)	40-59	1.15		0.86		1.02		0.98		0.77	*	0.68	**
	>60	0.74		0.89		1.04		1.24		0.59	**	0.41	**
Bike type (ref: Other)	Hybrid/MTB	0.93		0.93		0.73		1.07		1.17		0.89	
	Racer	0.91		0.84		0.83		1.31		1.58	*	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*		*0.112*		*0.033*		*0.079*		*0.177*	

OPPSUMMERT

- Selvseleksjon
  - I studier generelt
- Eldre har det bra
- Potensial for forbedring
  - ~30% ville syklet mer
- Dårlig D&V = mindre trygghet
  - Tar bil isteden
- Kvinner mer utsatt

Transportøkonomisk institutt
Stiftelsen Norsk senter for samferdselsforskning

Uavhengige variabler		%	N	Befolkning (2019)
Område		100	2376	
Andre		14	338	2 987 606
Akershus		7	176	624 055
Bergen		8	189	283 929
Buskerud		6	137	283 148
Jæren		13	312	201 801
Oslo		16	386	681 067
Trondheim		19	450	198 219
Tromsø		16	388	76 975
Kjønn		100	2376	
Mann		55	1308	
Kvinne		45	1068	
Aldersgrupper		100	2376	
<40		29	699	
40-49		29	687	
50-59		24	578	
>60		17	411	
Hvor ofte syklet		100	2376	
Mindre enn 4 dager i uka		38	908	
Mer enn 4 dager i uka		62	1468	

		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.