

Norwegians' understanding of the key concepts, attitudes, and intended behaviors

Table 1. Estimates of the percentage of Norwegian adults who understand each Key Concept

	Sample		Post-stratified Estimate (95% CI)
Increasing the amount of a treatment does not necessarily increase its benefits and may cause harm	191 / 211	(91%)	92% (88% to 96%)
The people being compared should be cared for similarly apart from the treatments being studied	186 / 211	(88%)	87% (81% to 93%)
Competing interests may result in misleading claims	176 / 210	(84%)	84% (77% to 91%)
Weigh the benefits and savings against the harms and costs of acting or not	179 / 210	(85%)	83% (77% to 90%)
Personal experiences or anecdotes alone are an unreliable basis for most claims	182 / 210	(87%)	82% (74% to 90%)
If possible, people should not know which of the treatments being compared they are receiving	178 / 210	(85%)	78% (69% to 86%)
Attention should focus on all important effects of treatments, and not surrogate outcomes	141 / 178	(79%)	76% (67% to 85%)
Small studies may be misleading	176 / 210	(84%)	74% (66% to 83%)
Treatments that are new or technologically impressive may not be better than available alternatives	156 / 210	(74%)	70% (62% to 79%)
Opinions alone are not a reliable basis for claims	159 / 210	(76%)	68% (59% to 77%)
Fair comparisons of treatments in animals or highly selected groups of people may not be relevant	111 / 172	(65%)	67% (57% to 77%)
It is important to assess outcomes in all (or nearly all) the people in a study	139 / 211	(66%)	64% (56% to 72%)
The treatments compared should be similar to those of interest	107 / 172	(62%)	56% (44% to 68%)

Identifying effects of treatments depends on making comparisons	143 / 210	(68%)	56% (47% to 65%)
An outcome may be associated with a treatment but not caused by it‡	490 / 771	(64%)	56% (50% to 61%)
Reviews of studies comparing treatments should use systematic methods	120 / 211	(57%)	51% (42% to 59%)
Outcomes should be assessed in the same way in all the groups being compared	116 / 211	(55%)	50% (42% to 58%)
Earlier detection of ‘disease’ is not necessarily better	75 / 178	(42%)	39% (30% to 48%)
Relative effects of treatments alone can be misleading	52 / 178	(29%)	34% (25% to 43%)
Deeming results to be “statistically significant” or “nonsignificant” can be misleading	49 / 178	(28%)	33% (24% to 42%)
Average differences between treatments can be misleading	50 / 178	(28%)	30% (20% to 39%)
Large, dramatic effects are rare	63 / 211	(30%)	28% (20% to 36%)
Consider how certain you can be about each advantage and disadvantage	49 / 172	(28%)	22% (13% to 31%)
Widely used treatments or those that have been used for decades are not necessarily beneficial or safe‡	164 / 771	(21%)	20% (15% to 25%)
The use of p-values may be misleading; confidence intervals are more informative	33 / 178	(19%)	18% (10% to 25%)
Beliefs alone about how treatments work are not reliable predictors of the presence or size of effects	39 / 211	(18%)	17% (12% to 23%)
Comparison groups should be as similar as possible‡	149 / 771	(19%)	15% (12% to 19%)
The results of one study considered in isolation can be misleading‡	90 / 771	(12%)	12% (8% to 16%)
People’s outcomes should be counted in the group to which they were allocated	14 / 178	(7.9%)	10% (3.4% to 17%)
Results for a selected group of people within a study can be misleading	17 / 178	(9.6%)	6.5% (3.1% to 9.8%)

‡ Confidence intervals have been Bonferroni-corrected.			
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Table 2. Attitudes and intended behaviors.

	Sample		Post-stratified Estimate (95% CI)
Willing to challenge claims?	140 / 172	(81%)	75% (66% to 85%)
Likely to research the basis of claims?	130 / 172	(76%)	70% (59% to 81%)
Willing to take part in research?	541 / 771	(70%)	67% (63% to 72%)
Easy to assess the relevance of study results?	35 / 172	(20%)	21% (9.1% to 33%)
Easy to assess if claims are based on research that compares treatments?	42 / 172	(24%)	18% (12% to 25%)
Easy to find research based on studies that compare treatments?	36 / 172	(21%)	18% (8.7% to 28%)
Easy to assess the credibility of results of studies that compare treatments?	32 / 172	(19%)	16% (5.7% to 26%)

The above results are presented graphically in the figure below.

Comparisons to Ugandans

Figure 1. The mean test scores of the Norwegian and Ugandan samples

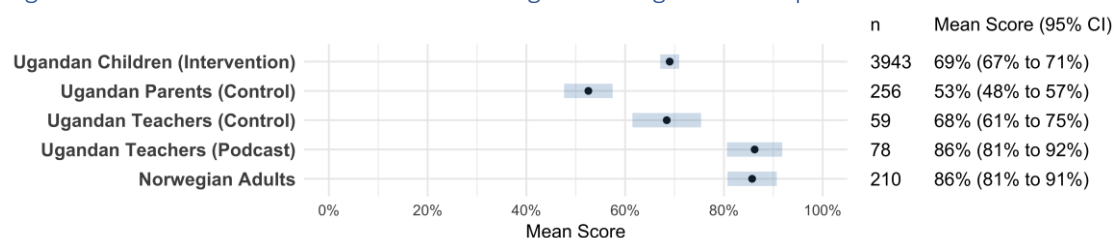


Figure 2. The compared probability of passing in the Norwegian and Ugandan samples

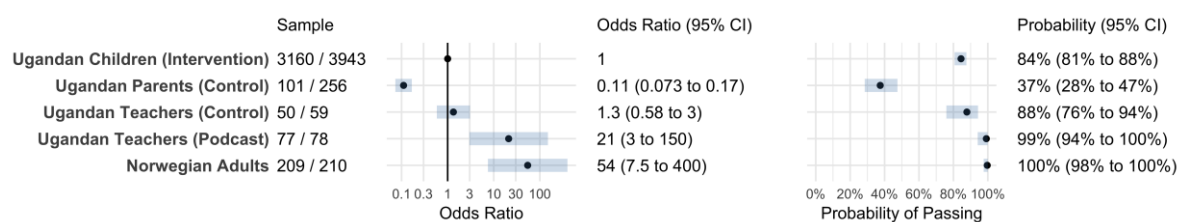
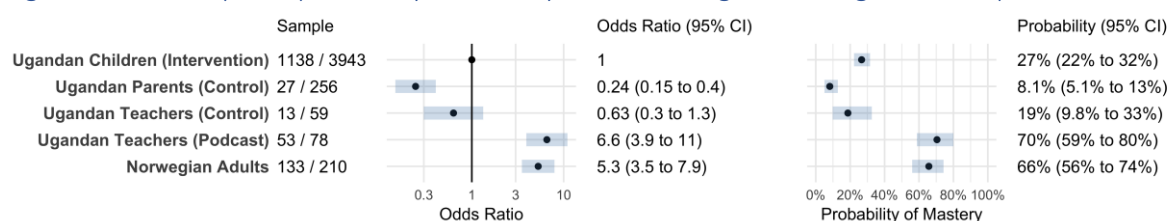


Figure 3. The compared probability of mastery in the Norwegians and Ugandan samples



Exploratory analyses

Table 3. Associations between demographic covariates and Norwegians' understanding of the key concepts

	Sample		Intercept	Male	Research training	Research participant	ISCED Levels 3-4	ISCED Levels 5-8	Medical education
Treatments that are new or technologically impressive may not be better than available alternatives	156 / 210	(74%)	1.3 (0.38 to 4.4)	1.6 (0.66 to 3.7)	1.4 (0.5 to 3.8)	1.4 (0.51 to 3.8)	1.1 (0.31 to 4)	1.6 (0.44 to 5.7)	1.3 (0.43 to 3.7)

Competing interests may result in misleading claims	176 / 210	(84%)	7 (1.5 to 33)	1 (0.39 to 2.7)	2 (0.82 to 5)	0.45 (0.13 to 1.6)	0.74 (0.14 to 3.9)	0.75 (0.15 to 3.9)	0.95 (0.29 to 3.1)
Opinions alone are not a reliable basis for claims	159 / 210	(76%)	1.4 (0.42 to 4.5)	1.3 (0.53 to 3)	2.6 (1.1 to 6.3)	0.77 (0.26 to 2.3)	0.84 (0.22 to 3.2)	2 (0.5 to 8.3)	1.2 (0.37 to 3.7)
Personal experiences or anecdotes alone are an unreliable basis for most claims	182 / 210	(87%)	4.4 (1.1 to 17)	0.22 (0.06 to 0.76)	5.6 (1.2 to 26)	0.63 (0.17 to 2.3)	2.7 (0.62 to 12)	4.3 (1.2 to 16)	0.72 (0.15 to 3.3)
Weigh the benefits and savings against the harms and costs of acting or not	179 / 210	(85%)	3.3 (0.78 to 14)	0.95 (0.35 to 2.5)	1.5 (0.54 to 4.3)	1.3 (0.31 to 5.4)	1.4 (0.33 to 6.3)	1.4 (0.34 to 5.8)	1.7 (0.48 to 5.8)
Widely used treatments or those that have been used for decades are not necessarily	164 / 771	(21%)	0.23 (0.11 to 0.52)	0.99 (0.61 to 1.6)	1.8 (1 to 3.1)	0.95 (0.58 to 1.6)	1 (0.45 to 2.3)	0.98 (0.45 to 2.1)	0.71 (0.4 to 1.3)

beneficial or safe									
An outcome may be associated with a treatment but not caused by it	490 / 771	(64%)	0.55 (0.29 to 1.1)	1.1 (0.69 to 1.6)	2.4 (1.5 to 4)	1.4 (0.83 to 2.2)	1.7 (0.83 to 3.3)	2.5 (1.3 to 4.8)	1.2 (0.69 to 1.9)
Small studies may be misleading	176 / 210	(84%)	1.3 (0.38 to 4.4)	0.61 (0.24 to 1.6)	3.1 (1.1 to 9.1)	0.78 (0.21 to 2.8)	2.2 (0.61 to 7.6)	6.6 (2 to 22)	3.9 (0.68 to 22)
If possible, people should not know which of the treatments being compared they are receiving	178 / 210	(85%)	1.8 (0.58 to 5.6)	0.9 (0.32 to 2.5)	0.67 (0.19 to 2.4)	1.1 (0.32 to 3.8)	1.8 (0.5 to 6.4)	7.3 (1.9 to 28)	0.82 (0.23 to 3)
The results of one study considered in isolation can be misleading	90 / 771	(12%)	0.16 (0.061 to 0.41)	0.79 (0.43 to 1.5)	1.2 (0.7 to 2.2)	1.3 (0.61 to 2.6)	1 (0.39 to 2.6)	0.85 (0.35 to 2.1)	0.48 (0.22 to 1)
Identifying effects of treatments depends on	143 / 210	(68%)	0.73 (0.23 to 2.3)	0.74 (0.32 to 1.7)	5.4 (1.9 to 15)	1.7 (0.54 to 5.2)	0.8 (0.24 to 2.6)	3.2 (1 to 10)	0.58 (0.18 to 1.9)

making comparisons									
Comparison groups should be as similar as possible	149 / 771	(19%)	0.045 (0.0094 to 0.21)	1.2 (0.72 to 1.9)	1.8 (1.1 to 2.9)	1.1 (0.68 to 1.8)	3.7 (0.85 to 16)	4.1 (1 to 17)	0.95 (0.56 to 1.6)
Increasing the amount of a treatment does not necessarily increase its benefits and may cause harm	191 / 211	(91%)	11 (1.2 to 110)	1.6 (0.47 to 5.5)	1.1 (0.36 to 3.1)	2.3 (0.68 to 7.5)	1.1 (0.11 to 11)	0.45 (0.065 to 3.2)	0.9 (0.27 to 3)
Beliefs alone about how treatments work are not reliable predictors of the presence or size of effects	39 / 211	(18%)	0.043 (0.0065 to 0.28)	1.7 (0.64 to 4.3)	1.5 (0.57 to 3.7)	1.7 (0.65 to 4.2)	4.4 (0.52 to 38)	2.9 (0.4 to 22)	1.1 (0.38 to 3.4)
Large, dramatic effects are rare	63 / 211	(30%)	0.42 (0.14 to 1.3)	0.8 (0.36 to 1.8)	1.3 (0.46 to 3.5)	3 (1.3 to 6.9)	0.64 (0.2 to 2.1)	0.99 (0.3 to 3.3)	0.47 (0.17 to 1.3)
The people being compared	186 / 211	(88%)	5.9 (1.8 to 19)	0.93 (0.32 to 12)	3.2 (0.85 to 12)	1.1 (0.43 to 2.8)	1.5 (0.26 to 8)	1.2 (0.23 to 6.3)	0.31 (0.086 to 1.1)

should be cared for similarly apart from the treatments being studied				to 2.7)					
Outcomes should be assessed in the same way in all the groups being compared	116 / 211	(55%)	0.3 (0.1 to 0.88)	1.6 (0.77 to 3.2)	2.4 (0.97 to 6.2)	1.3 (0.61 to 2.8)	2.9 (0.9 to 9.7)	3 (0.98 to 9)	0.58 (0.24 to 1.4)
It is important to assess outcomes in all (or nearly all) the people in a study	139 / 211	(66%)	1.6 (0.54 to 4.8)	0.76 (0.34 to 1.7)	0.77 (0.33 to 1.8)	0.98 (0.44 to 2.2)	1.4 (0.44 to 4.8)	1.5 (0.48 to 4.9)	0.93 (0.34 to 2.5)
Reviews of studies comparing treatments should use systematic methods	120 / 211	(57%)	0.53 (0.18 to 1.6)	1.7 (0.84 to 3.6)	1.2 (0.53 to 2.6)	1.8 (0.82 to 3.8)	1.1 (0.36 to 3.5)	2 (0.69 to 6.1)	0.64 (0.27 to 1.5)

Fair comparisons of treatments in animals or highly selected groups of people may not be relevant	111 / 172	(65%)	3.9 (0.76 to 20)	2.5 (0.94 to 6.4)	0.77 (0.3 to 2)	0.37 (0.12 to 1.1)	0.31 (0.05 to 2)	0.86 (0.13 to 5.6)	0.33 (0.14 to 0.79)
The treatments compared should be similar to those of interest	107 / 172	(62%)	1.4 (0.27 to 7.4)	0.78 (0.28 to 2.2)	0.88 (0.38 to 2.1)	0.63 (0.22 to 1.8)	0.95 (0.15 to 5.8)	2 (0.3 to 13)	0.66 (0.28 to 1.6)
Consider how certain you can be about each advantage and disadvantage	49 / 172	(28%)	0.21 (0.036 to 1.2)	1.6 (0.52 to 4.9)	0.94 (0.42 to 2.1)	0.74 (0.27 to 2.1)	0.41 (0.039 to 4.5)	2.6 (0.34 to 20)	0.62 (0.2 to 1.9)
Deeming results to be “statistically significant” or “nonsignifica	49 / 178	(28%)	0.57 (0.14 to 2.3)	3.2 (1.2 to 8.4)	0.51 (0.21 to 1.3)	1.1 (0.43 to 3.1)	0.3 (0.07 to 1.3)	0.38 (0.11 to 1.3)	1.9 (0.52 to 7.1)

nt” can be misleading									
The use of p-values may be misleading; confidence intervals are more informative	33 / 178	(19%)	0.25 (0.036 to 1.7)	1.1 (0.36 to 3.6)	1 (0.4 to 2.7)	0.52 (0.17 to 1.6)	0.53 (0.085 to 3.3)	1.3 (0.29 to 6)	1.4 (0.39 to 4.9)
Relative effects of treatments alone can be misleading	52 / 178	(29%)	0.95 (0.25 to 3.6)	1.1 (0.42 to 2.7)	0.73 (0.27 to 1.9)	0.35 (0.13 to 0.95)	0.72 (0.17 to 2.9)	0.35 (0.096 to 1.3)	3.1 (0.86 to 11)
Average differences between treatments can be misleading	50 / 178	(28%)	0.76 (0.19 to 3.1)	0.7 (0.28 to 1.7)	0.87 (0.33 to 2.2)	0.97 (0.33 to 2.8)	0.75 (0.17 to 3.3)	0.73 (0.2 to 2.7)	0.25 (0.063 to 1)
Results for a selected group of people within a study can be misleading	17 / 178	(9.6%)	2.3e-09 (8.2e-10 to 6.2e-09)	1.4 (0.39 to 5.2)	1.1 (0.28 to 3.9)	2 (0.54 to 7.3)	1.1e+07 (270000 to 4.3e+07)	3.7e+07 (1.6e+07 to 8.5e+07)	2.2 (0.34 to 14)
Earlier detection of ‘disease’ is not	75 / 178	(42%)	0.69 (0.2 to 2.4)	0.64 (0.27 to 1.5)	1.3 (0.52 to 3.3)	2 (0.89 to 4.4)	0.72 (0.19 to 2.8)	1.1 (0.29 to 4.3)	0.68 (0.22 to 2.1)

necessarily better									
People's outcomes should be counted in the group to which they were allocated	14 / 178	(7.9 %)	0.1 (0.029 to 0.37)	1.4 (0.29 to 7.2)	0.6 (0.16 to 2.3)	3.8 (1 to 14)	0.44 (0.071 to 2.7)	0.37 (0.071 to 2)	1.3 (0.17 to 9.5)
Attention should focus on all important effects of treatments, and not surrogate outcomes	141 / 178	(79%)	2.4 (0.72 to 8.3)	1 (0.4 to 2.5)	0.88 (0.32 to 2.5)	0.73 (0.24 to 2.2)	1.2 (0.3 to 5)	1.8 (0.48 to 6.8)	2.1 (0.49 to 9.2)

Figure 4. Associations between demographic covariates and Norwegians' understanding of the key concepts



Table 4. Associations between demographic covariates and Norwegians' attitudes and intended behaviours

	Sample		Intercept	Male	Research training	Research participant	ISCED Levels 3-4	ISCED Levels 5-8	Medical education
Willing to take part in research?	541 / 771	(70 %)	1.6 (0.83 to 3.1)	1.1 (0.7 to 1.7)	1.1 (0.71 to 1.8)	1.4 (0.8 to 2.3)	0.96 (0.47 to 1.9)	1.3 (0.67 to 2.6)	1.1 (0.64 to 1.8)
Willing to challenge claims?	140 / 172	(81 %)	4.7 (0.42 to 52)	1.9 (0.6 to 5.7)	1.7 (0.49 to 5.9)	1 (0.31 to 3.3)	0.16 (0.021 to 1.2)	1 (0.11 to 9.3)	1.8 (0.44 to 7.5)
Likely to research the basis of claims?	130 / 172	(76 %)	1.2 (0.2 to 6.9)	3 (1.1 to 8.2)	1.3 (0.45 to 4)	1.5 (0.42 to 5)	0.53 (0.1 to 2.8)	1.8 (0.33 to 10)	2.8 (0.65 to 12)

Easy to assess if claims are based on research that compares treatments?	42 / 172	(24 %)	5.4e-09 (3.3e-09 to 8.8e-09)	1.3 (0.5 to 2 to 3.1)	2.1 (0.83 to 5.4)	1.5 (0.49 to 4.8)	2.3e+07 (890000 to 6e+07)	4.5e+07 (2e+07 to 9.9e+07)	0.96 (0.33 to 2.8)
Easy to find research based on studies that compare treatments?	36 / 172	(21 %)	0.15 (0.031 to 0.75)	0.9 (0.3 to 2.3)	1.6 (0.47 to 5.2)	5.7 (1.9 to 17)	0.59 (0.095 to 3.7)	0.7 (0.11 to 4.7)	1 (0.24 to 4.1)
Easy to assess the credibility of results of studies that compare treatments?	32 / 172	(19 %)	0.18 (0.032 to 0.97)	3.8 (1 to 14)	4.4 (1.4 to 14)	1.2 (0.25 to 5.7)	0.057 (0.0049 to 0.68)	0.32 (0.041 to 2.5)	0.94 (0.19 to 4.7)
Easy to assess the relevance of study results?	35 / 172	(20 %)	0.26 (0.044 to 1.6)	1.8 (0.5 to 5.9)	1.7 (0.58 to 4.8)	1.4 (0.48 to 4.2)	0.36 (0.032 to 4)	0.44 (0.048 to 4)	2.4 (0.71 to 8.1)

Figure 5. Associations between demographic covariates and Norwegians' attitudes and intended behaviours

