

Supplementary material

Online appendix to “Public Attitudes Toward Corporal Punishment and Child Protection Involvement: A Cross-National Study of Denmark, England, and Norway”

Table A0. Demographic overview of sample by country. Per cent and n= in parentheses per country (mean and min/max for age). Total n=3714.*

		Denmark	England	Norway	Total
Income	Low	27,2% (222)	26,8% (391)	28,0% (289)	100% (902)
	Medium	51,4% (419)	51,8% (756)	48,8% (504)	100% (1679)
	High	21,3% (174)	21,4% (312)	23,2% (239)	100% (725)
	Total	100% (815)	100% (1459)	100% (1032)	100% (3306)
Educational level	Lower	50,9% (504)	59,1% (905)	28,9% (345)	100% (1754)
	Middle	28,3% (280)	7,6% (116)	52,1% (621)	100% (1017)
	High	20,9% (207)	33,3% (510)	19,0% (226)	100% (943)
	Total	100% (991)	100% (1531)	100% (1192)	100% (3714)
Gender	Male	50,4% (504)	48,9% (821)	50,4% (602)	49,7% (1927)
	Female	49,6% (496)	51,1% (859)	49,6% (592)	50,3% (1947)
	Total	100% (1000)	100% (1680)	100% (1194)	100% (3874)
Age	Mean	47,02	47,35	47,71	47,37
	Min/Max	18/87	18/87	18/75	18/87
	N=	1000	1680	1194	3874

*Data is weighted.

1. Operationalisation of variables and descriptive statistics

Table A1. Distribution of survey responses

Question / Response option	Freq.	Percent
Q1. Impartiality		
Very much disagree	141	3.67
Disagree	458	11.91
Neither agree nor disagree	1,224	31.84
Agree	1,017	26.46
Very much agree	246	6.40
Don't know / I do not wish to respond (=6)	758	19.72
Total	3,844	100.00
Q2. Competency		
Very much disagree	143	3.72
Disagree	567	14.75
Neither agree nor disagree	1,068	27.78
Agree	1,105	28.75
Very much agree	232	6.04
Don't know / I do not wish to respond	729	18.96
Total	3,844	100.00
Q3. Resources		

Question / Response option	Freq.	Percent
Very much disagree	302	7.86
Disagree	1,143	29.73
Neither agree nor disagree	971	25.26
Agree	557	14.49
Very much agree	135	3.51
Don't know / I do not wish to respond	736	19.15
Total	3,844	100.00

Q4. Rights orientation

The child should have fewer rights than the parents	227	5.91
The child should have the same rights as the parents	1,521	39.57
The child should have more rights than the parents	1,663	43.26
Do not know / I do not wish to respond	433	11.26
Total	3,844	100.00

Q5. Acceptance

Yes, a slap on the backside and the ear are acceptable to correct undesirable behavior	705	18.34
No, a slap on the backside and the ear are not acceptable to correct undesirable behavior.	2,734	71.12
I don't know/ I do not wish to respond	405	10.54
Total	3,844	100.00

Q6. Recommended actions

They should not get involved at all	219	5.70
They should monitor/visit the family, but not interfere unless the situation worsens	1,218	31.69
They should provide in-home services for the family, but only if the parents agree	390	10.15
They should provide in-home services for the family, also if the parents disagree	1,590	41.36
They should prepare for temporarily removing the child to another family	128	3.33
I don't know / I do not wish to respond	299	7.78
Total	3,844	100.00

Q6.1 Recommended action (binary)

Low involvement (0)		
(q6=1) They should not get involved at all		
(q6=2) They should monitor/visit the family, but not interfere unless the situation		
	1,437	40.54
High involvement (1)		
(q6=3) They should provide in-home services for the family, but only if the parents agree		
(q6=4) They should provide in-home services for the family, also if the parents disagree		
(q6=5) They should prepare for temporarily removing the child to another family	2,108	59.46
Total	3,545	100.00

2. Operationalisation of confidence in child protection authorities

To capture overall confidence, the three items were combined into an additive index, calculated as the mean of the responses across items:

$$\text{Confidence index} = \frac{\text{Impartiality} + \text{Competency} + \text{Resources}}{3}$$

This approach ensures that each dimension contributes equally to the overall measure. The index demonstrates good internal consistency (Cronbach's $\alpha = 0.75$), supporting its reliability as a measure of public confidence in child protection authorities. The three items are moderately correlated, reflecting a coherent underlying construct of institutional confidence. The index ranges from 1 to 5, where higher values indicate stronger confidence, while a score of 1 reflects consistently low agreement. Table A2 presents descriptive statistics for each item and for the combined index. Since the index requires complete responses across all three items, the number of observations for the index is lower than for the individual items.

Table A2. Descriptive overview of confidence variables and index. N=, mean, SD, min/max.

Variable	Obs	Mean	Std. Dev.	Min	Max
Impartial	3,086	3.25	0.96	1	5
Competency	3,115	3.23	0.98	1	5
Resources	3,108	2.70	1.01	1	5
Confidence index	2,756	3.07	0.81	1	5

Note: Since the confidence index is calculated using only complete responses, respondents who have not answered any or only some of the items will not receive an index score.

3. Operationalisation of control variables

3.1. Harmonising education

Education was harmonised into a three-category measure distinguishing between low, medium, and high levels of educational attainment.

- **Low (1):** Below university-level education
- **Middle (2):** Undergraduate or bachelor's degree
- **High (3):** Postgraduate or higher degree (master's, doctorate, PhD, etc.)

The categorisation was guided by ISCED mappings of national educational systems (see UNESCO ISCED mappings: <http://uis.unesco.org/en/isced-mappings>). Country-specific education variables were recoded into a harmonised measure as follows:

Table A3. Operationalisation of Education Across Countries

Harmonised category	England (eduUK)	Norway (eduNO)	Denmark (eduDK)
Low (1)	1 = None completed 2 = Up to GCSEs/O level 3 = Up to A levels	1 = Grunnskole/Folkeskole/Vi	1 = Grundskole 8.–10. klasse (incl. realskole) 2 = Almengymnasial (HF)

Harmonised category	England (eduUK)	Norway (eduNO)	Denmark (eduDK)
		deregående skole/Yrkesskole	3 = Erhvervsgymnasial (HHX, HTX) 4 = Erhvervsfaglig (EUD, vocational) 5 = Short-cycle higher (≤ 2 years)
Middle (2)	4 = Undergraduate (not a Bachelor's degree) 5 = Graduate (Bachelor's degree)	2 = 1–3 years of university/college (or equivalent)	6 = Medium-cycle higher education (2–4½ years)
High (3)	6 = Postgraduate (Master, Doctorate, PhD, etc.)	3 = 4–5 years of university/college 4 = 6+ years of university/college 5 = Doctorate/specialist degree	7 = Long-cycle higher education (≥ 5 years) 8 = Research education (PhD)
Missing	7 = Other qualifications/apprenticeships	—	—

3.2. Harmonizing household income across countries

Harmonising household income across countries is challenging due to differences in currencies, tax systems, and survey question formats. Household income was measured at the household level in all three surveys using local currencies and categories. England reported *monthly net household income* (after tax), while Norway and Denmark reported *annual gross household income* (before tax).

To enable comparability, the variable was harmonised into a three-category relative empirically driven measure distinguishing between low income (bottom 25% of the national distribution), medium income (middle 50%), and high income (top 25%). This operationalisation ensures that the measure captures respondents' relative income position within their country, rather than relying on absolute thresholds that are not comparable across contexts.

This approach has some advantages, it enables meaningful cross-country comparison by situating respondents relative to their national context, it captures socio-economic position in a way that is often more relevant for attitudes and behaviours than absolute amounts. At the same time, the strategy entails trade-offs. It does not allow for direct comparison of absolute income levels across countries, and compressing incomes into three groups reduces within-group variation. Moreover, the income concepts differ between surveys—England reports net monthly household income, while Norway and Denmark report gross annual household income—introducing additional complexity. Finally, because the original variables are categorical with uneven income bands, the quartile-based harmonisation is only an approximation.

Table A4. Harmonisation of household income categories by country

Harmonised category	England (monthly household, net income)	Norway (annual gross household, income)	Denmark (annual gross household, gross income)
Low (1) – Bottom ~25%	1 = < £350 2 = £350–699	1 = < 400,000 NOK 2 = 400,000–599,999 NOK	1 = < 100,000 DKK 2 = 100,000–199,999 DKK 3 = 200,000–299,999 DKK

Harmonised category	England household, net income)	(monthly	Norway household, income)	(annual gross	Denmark household, gross income)	(annual
	3 = £700–999					
	4 = £1000–1399					
Medium (2) Middle ~50%	5 = £1400–1749	3 = 600,000–799,999		4 = 300,000–399,999 DKK		
	6 = £1750–2049	NOK		5 = 400,000–499,999 DKK		
	7 = £2050–2399	4 = 800,000–999,999		6 = 500,000–599,999 DKK		
	8 = £2400–2749	NOK		7 = 600,000–699,999 DKK		
	9 = £2750–3099	5 = 1,000,000–1,199,999		8 = 700,000–799,999 DKK		
	10 = £3100–3449	NOK				
High (3) – Top ~25%				9 = 800,000–899,999 DKK		
				10 = 900,000–999,999 DKK		
	11 = £3450–3799			11 = 1,000,000–1,499,999 DKK		
	12 = £3800–4149	6 = ≥ 1,200,000 NOK		12 = 1,500,000–1,999,999 DKK		
	13 = > £4150			13 = 2,000,000–2,999,999 DKK		
				14 = ≥ 3,000,000 DKK		
Missing	14 = Prefer not to answer	–		98 = Don't know		
				99 = Prefer not to answer		

Table A4.1. Distribution of harmonised household income categories across countries

Country	Low income (1)	Medium income (2)	High income (3)
Denmark	222 (24.8%)	421 (25.3%)	172 (24.2%)
England	389 (43.4%)	744 (44.6%)	300 (42.2%)
Norway	286 (31.9%)	502 (30.1%)	239 (33.6%)
Total	897 (100%)	1,667 (100%)	711 (100%)

Table A5. Summary statistics for independent and control variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Female	3,274	0.48	0.50	0	1
Age	3,275	48.23	16.86	18	87
Education	3,150	1.78	0.83	1	3
Income	3,275	1.94	0.70	1	3
Child protection system	3,275	0.56	0.50	0	1
Rights orientation	3,411	2.42	0.61	1	3
Confidence index	2,756	3.06	0.81	1	5

Table A6. Logistic regression analysis for acceptance of parental discipline methods (Acceptance). Beta coeff. and SE in parentheses.

Dependent variable: Acceptance of CP	
Model 1	
Dependent variable: Acceptance of CP	Coef. (std.err)
Country (ref=Denmark)	
England	2.033*** (.142)
Norway	-.121 (.174)
Constant	-2.452*** (.131)
R-square	0.152
Prob>chi	0.000
N	3438

Note: Ref. category DV = No, a slap on the backside and the ear are not acceptable to correct undesirable behavior. All models are estimated with robust standard errors.

* p<0.05, ** p<0.01, *** p<0.001.

Table A7. Logistic regression analysis for child protection involvement (Action). Beta coeff. and SE in parentheses.

Dependent variable: Action – Involvement by the CPS (values 3-5)				
	Model 1	Model 2	Model 3	Model 4
	Coef. (std.err)	Coef. (std.err)	Coef. (std.err)	Coef. (std.err)
Acceptance	-1.823*** (.110)	-2.070*** (.110)		-1.722*** (.116)
Rights (ref=fewer rights)				
<i>same rights</i>		.208 (.187)	.365* (.164)	.194 (.190)
<i>more rights</i>		.506** (.186)	.813*** (.165)	.535** (.190)
Country (ref=Denmark)				
<i>England</i>	-1.246*** (.107)		-1.612*** (.102)	-1.278*** (.114)
<i>Norway</i>	-.536*** (.110)		-.535*** (.109)	-.613*** (.117)
Constant	1.546*** (.086)	.563** (.179)	.757*** (.169)	1.237*** (.196)
R-square	0.159	0.124	0.090	0.159
Chi>prob	0.000	0.000	0.000	0.000
N	3297	3060	3263	3060

Note: Ref. category DV = Low involvement (values 1-2). All models are estimated with robust standard errors.

* p<0.05, ** p<0.01, *** p<0.001.