

## Supplementary materials

Table S1. Preliminary scale items (n = 24) after completion of Study 1

id	item
[exp_1]	Chosen to meet face-to-face with people who support the use of violence to achieve political, religious, or social goals
[exp_2]	Searched for books, magazines, or other types of text which support the use of violence to achieve political, religious, or social goals
[exp_4]	Chosen to spend time in places where people who support the use of violence to achieve political, religious, or social goals spend time
[exp_6]	Searched for content online like websites, memes, or videos that support the use of violence to achieve political, religious, or social goals
[exp_9]	Used the internet to observe online chat between other people who support the use of violence to achieve political, religious, or social goals
[exp_10]	Searched for items or memorabilia relating to people or groups who support the use of violence to achieve political, religious, or social goals
[exp_12]	Searched for podcasts, songs, or other types of audios which support the use of violence to achieve political, religious, or social goals
[exp_14]	Attended protests knowing people who support the use of violence to achieve political, religious, or social goals would be there
[exp_15]	Searched for information on how to use weapons or make bombs for violence to achieve political, religious, or social goals
[exp_17]	Searched for content about people who have committed violence to achieve political, religious, or social goals
[exp_18]	Searched for places where people who support the use of violence to achieve political, religious, or social goals spend time
[exp_19]	Searched for content made by people who have committed violence to achieve political, religious, or social goals, such as manifestos, or YouTube videos
[exp_20]	Searched for events or activities to attend which support violence to achieve political, religious, or social goals
[exp_21]	Searched for people or groups who support the use of violence to achieve political, religious, or social goals
[pass_1]	Know of people where you live who support violence to achieve political, religious, or social goals
[pass_4]	Accidentally witnessed someone threaten violence to achieve political, religious, or social goals
[pass_5]	Know of activity where you live that supports violence to achieve political, religious, or social goals
[pass_6]	Accidentally came across content which supports violence to achieve political, religious, or social goals online
[pass_8]	Received content online that you didn't ask for, such as memes or videos which violence to achieve political, religious, or social goals
[pass_9]	Content which supports violence to achieve political, religious, or social goals recommended to you on social media
[pass_11]	Received content online that you didn't ask for such as images or videos which show acts of violence to achieve political, religious, or social goals
[pass_14]	Know of places where you live where activity that supports violence to achieve political, religious, or social goals takes place

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[pass\_15] Came across content online about using violence to achieve political, religious, or social goals while looking for content about something else

[pass\_16] Know of stories about people who have committed violence to achieve political, religious, or social goals

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Table S2. Q3 correlations for all sub-scales to evaluate local independence. Correlations >0.2 indicate local dependence and violate a key assumption of IRT. Such items should be modified or removed before proceeding with IRT.

Factor 1		exp_6	exp_18	exp_813
	exp_6	1	-0.382	-0.242
	exp_18	-0.382	1	-0.29
	exp_813	-0.242	-0.29	1
Factor 2		exp_1	exp_14	exp_15
	exp_1	1	-0.126	-0.214
	exp_14	-0.126	1	-0.246
	exp_15	-0.214	-0.246	1
Factor 3		pass_6	pass_8	pass_15
	pass_6	1	-0.422	-0.455
	pass_8	-0.422	1	-0.319
	pass_15	-0.455	-0.319	1
Factor 4		exp_1	exp_14	exp_15
	exp_1	1	-0.126	-0.214
	exp_14	-0.126	1	-0.246
	exp_15	-0.214	-0.246	1

Table S3. Item level model fit statistics and  $a$  and  $b$  parameters for final scale items. Acceptable item-level fit is RMSEA.  $S_X^2 < .06$  and  $p.S_X^2 > .016$  (corrected for multiple comparisons).

		$S_X^2$	df. $S_X^2$	RMSEA. $S_X^2$	$a$	$b1$	$b2$	$b3$	$b4$	$b5$	$b6$
Factor 1	act_6	4.761	9	.000	3.153894	1.211772	1.731307	2.256554	2.49412	3.173905	NA
	act_18	9.572	4	.030	3.258033	1.250715	1.798105	2.417496	3.055695	3.320008	3.931456
	act_21	6.415	8	.000	2.812666	1.409587	1.962764	2.410222	2.723157	3.316828	3.847882
Factor 2	act_1	5.674	2	.035	2.475439	1.653033	2.082184	2.596219	2.824467	3.303359	3.746396
	act_14	3.901	2	.025	3.985126	2.091408	2.501278	2.891852	3.18725	3.286282	NA
	act_15	5.968	1	.057	3.356798	1.631942	2.147829	2.679379	2.947814	3.404595	3.832793
Factor 3	pass_6	21.678	14	.019	3.750640	.3079277	1.081357	1.750893	2.043074	2.641286	3.107625
	pass_8	18.486	15	.012	2.799663	.6027981	1.251139	1.835351	2.223813	2.729022	3.936875
	pass_15	15.742	12	.014	3.110685	.5766068	1.291651	1.874361	2.252072	3.388596	3.760902
Factor 4	pass_1	20.475	19	.007	3.021282	.5726899	1.268610	1.848709	2.172504	2.474146	2.767623
	pass_5	9.132	14	.000	5.092399	.7780770	1.457069	1.790538	2.084728	2.490584	2.871656
	pass_14	22.068	15	.018	3.559644	1.176981	1.734154	2.209899	2.445761	2.84724	3.171661

Table S4. Frequency of response categories for Study 2 (n = 1, 509) and Study 3 (n = 1, 475) samples.

	Item number	Never	Once or twice	A few times	Once or twice a year	Once or twice a month	Once or twice a week	Everyday
<b>Study 2 (n = 1,509)</b>								
Factor 1	act_6	85.60%	8%	3.90%	0.90%	1.20%	0.40%	0%
	act_18	86.40%	8.10%	3.80%	1.20%	0.20%	0.20%	0.10%
	act_21	88.60%	6.80%	2.50%	0.90%	0.80%	0.30%	0.10%
Factor 2	act_1	91%	4.30%	2.70%	0.70%	0.80%	0.30%	0.30%
	act_14	97.20%	1.60%	0.70%	0.30%	0.10%	0.20%	0.00%
	act_15	92.60%	4.60%	1.90%	0.40%	0.30%	0.10%	0.10%
Factor 3	pass_6	60.80%	23.10%	10.30%	2.30%	2.50%	0.70%	0.30%
	pass_8	69.80%	16.40%	7.80%	2.80%	2.00%	1.10%	0.10%
	pass_15	69.10%	18.00%	7.60%	2.60%	2.50%	0.10%	0.10%
Factor 4	pass_1	69.10%	17.80%	7.60%	2.20%	1.30%	0.90%	1.10%
	pass_5	77.20%	14.60%	3.40%	1.90%	1.70%	0.70%	0.50%
	pass_14	86.00%	8.30%	3.20%	0.90%	0.00%	0.30%	0.30%
<b>Study 3 (n = 1, 475)</b>								
Factor 1	act_6	81.80%	8.90%	5.00%	1.80%	1.30%	1.00%	0.20%
	act_18	92.90%	3.50%	2.00%	0.70%	0.50%	0.20%	0.10%
	act_21	88.90%	6.30%	3.30%	0.70%	0.50%	0.20%	0.00%
Factor 2	act_1	91.70%	4.30%	2.20%	0.90%	0.50%	0.20%	0.20%
	act_14	94.50%	2.80%	1.40%	0.90%	0.10%	0.20%	0.10%

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	act_15	95.40%	2.60%	0.70%	0.50%	0.40%	0.10%	0.20%
Factor 3	pass_6	54.80%	23.80%	14%	4%	1.80%	1.30%	0.30%
	pass_8	56.50%	22.30%	12.70%	4.10%	3.10%	1.20%	0.20%
	pass_15	62.20%	23.80%	8.60%	2.90%	1.20%	1.20%	0.10%
Factor 4	pass_1	79.20%	13.30%	4.80%	1.40%	0.70%	0.30%	0.30%
	pass_5	84.90%	7.80%	4.80%	1.20%	0.70%	0.30%	0.30%
	pass_14	87.30%	8.30%	2.20%	1.10%	0.50%	0.30%	0.30%

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Table S5. Inter-item correlations (Spearman's Rho) for EXPO-12.

	act_1	act_2	act_6	act_14	act_15	act_18	pass_1	pass_5	pass_6	pass_8	pass_14	pass_15
act_1	1	.396**	.280**	.406**	.406**	.322**	.325**	.296**	.272**	.256**	.331**	.267**
act_2	.396**	1	.470**	.334**	.367**	.401**	.228**	.237**	.317**	.279**	.238**	.276**
act_6	.280**	.470**	1	.295**	.263**	.505**	.246**	.233**	.363**	.336**	.251**	.342**
act_14	.406**	.334**	.295**	1	.368**	.336**	.231**	.266**	.212**	.211**	.298**	.222**
act_15	.406**	.367**	.263**	.368**	1	.254**	.287**	.280**	.232**	.234**	.294**	.227**
act_18	.322**	.401**	.505**	.336**	.254**	1	.283**	.270**	.438**	.368**	.337**	.410**
pass_1	.325**	.228**	.246**	.231**	.287**	.283**	1	.599**	.457**	.381**	.498**	.381**
pass_5	.296**	.237**	.233**	.266**	.280**	.270**	.599**	1	.479**	.416**	.593**	.391**
pass_6	.272**	.317**	.363**	.212**	.232**	.438**	.457**	.479**	1	.577**	.424**	.622**
pass_8	.256**	.279**	.336**	.211**	.234**	.368**	.381**	.416**	.577**	1	.381**	.551**
pass_14	.331**	.238**	.251**	.298**	.294**	.337**	.498**	.593**	.424**	.381**	1	.399**
pass_15	.267**	.276**	.342**	.222**	.227**	.410**	.381**	.391**	.622**	.551**	.399**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

## Appendix S1. EXPO-12 scale in full

“How often have you experienced each of the following”

0 – Never, 1 – Once or twice, 3 – A few times, 4 – Once or twice a year, 5 – Once or twice a month, 6 – Once or twice a week, 7 – Everyday

1. Noticed people where you live who support violence to achieve political, religious, or social goals
2. Noticed activity where you live that supports violence to achieve political, religious, or social goals
3. Searched for content online like websites, memes, or videos that support the use of violence to achieve political, religious, or social goals
4. Searched for places where people who support the use of violence to achieve political, religious, or social goals spend time
5. Accidentally came across content which supports violence to achieve political, religious, or social goals online
6. Received content online that you didn't ask for, such as memes or videos which violence to achieve political, religious, or social goals
7. Chosen to meet face-to-face with people who support the use of violence to achieve political, religious, or social goals
8. Attended protests knowing people who support the use of violence to achieve political, religious, or social goals would be there
9. Came across content online about using violence to achieve political, religious, or social goals while looking for content about something else
10. Noticed places where you live where activity that supports violence to achieve political, religious, or social goals takes place
11. Searched for information on how to use weapons or make bombs for violence to achieve political, religious, or social goals
12. Searched for people or groups who support violence to achieve political, religious, or social goals



Parallel Analysis Scree Plots

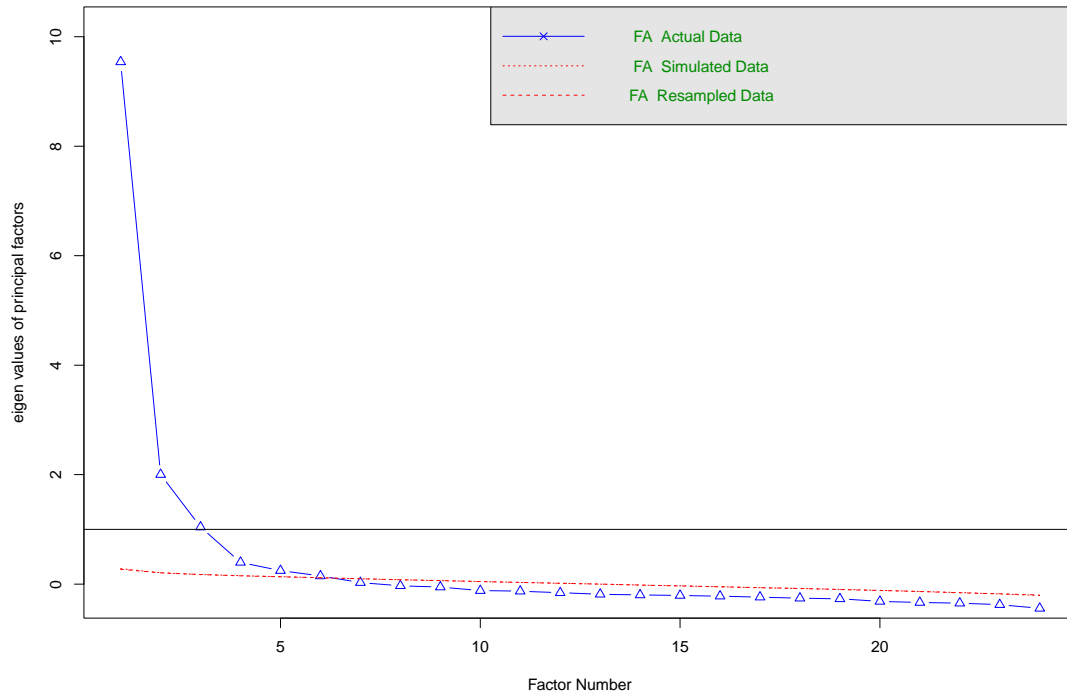


Figure S1. Parallel analysis scree plot. The optimum number of factors to extract can be determined by examining the point at which the slope (actual data – solid blue line) is clearly levelling off. This is also referred to as ‘the elbow.’ Based on the above plot we considered four-six factor solutions.

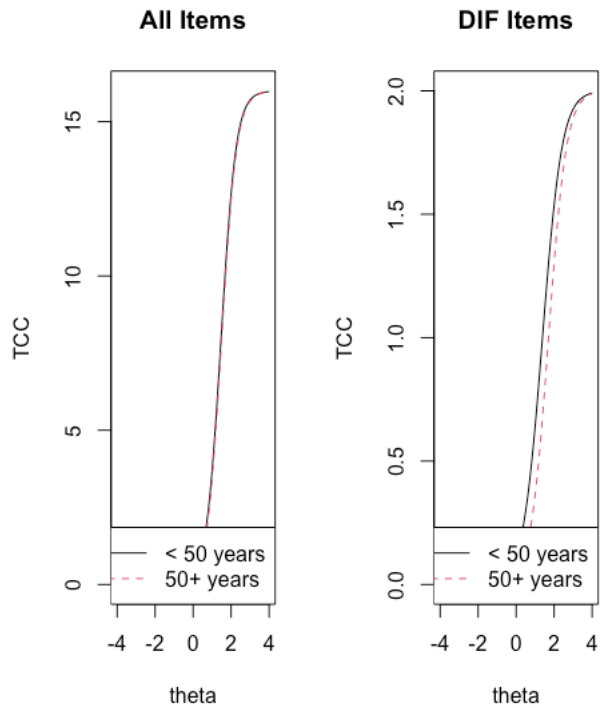


Figure S2. Impact of DIF items versus all items for item act\_10 of Factor 1 flagged as DIF for age. The plot labelled 'DIF items' shows the difference between how the items performs for those under 50years old versus those over 50 years old. DIF is identified by a 'gap' between the two curves. A good item which does not demonstrate DIF would be depicted by overlapping curves for both age groups. However, the curve labelled 'All items' demonstrates that when considering the subscale overall, the effect of the DIF item is very small.

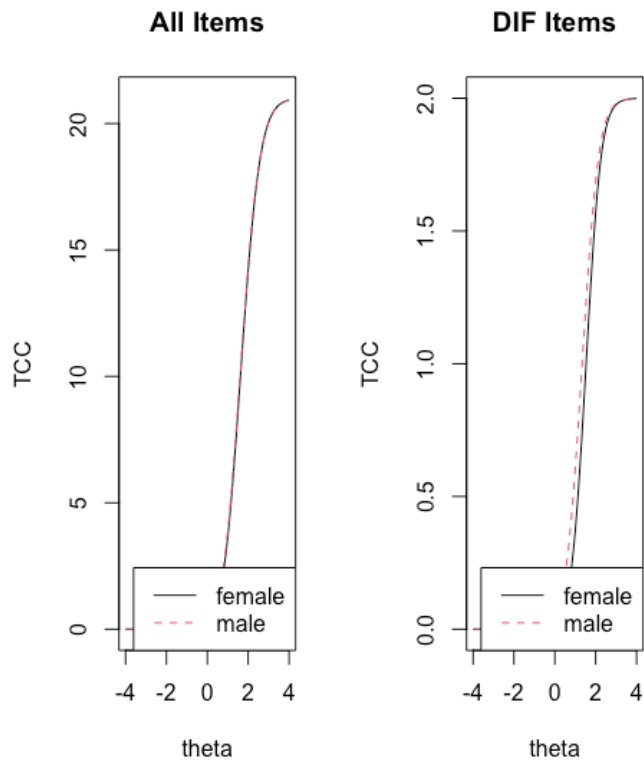


Figure S3. Impact of DIF items versus all items for item act\_12 of Factor 1 flagged as DIF for gender. The plot labelled 'DIF items' shows the difference between how the items performs for males versus females. DIF is identified by a 'gap' between the two curves. A good item which does not demonstrate DIF would be depicted by overlapping curves for both age groups. However, the curve labelled 'All items' demonstrates that when considering the subscale overall, the effect of the DIF item is very small.

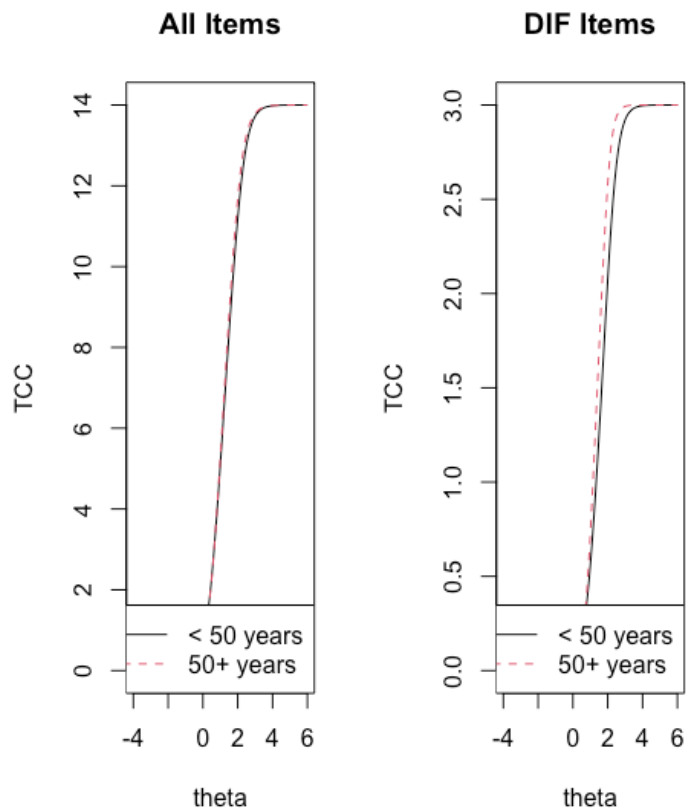


Figure S4. Impact of DIF items versus all items for item pass\_9 of Factor 3 flagged as DIF for age. The plot labelled 'DIF items' shows the difference between how the items performs for those under 50years old versus those over 50 years old. DIF is identified by a 'gap' between the two curves. A good item which does not demonstrate DIF would be depicted by overlapping curves for both age groups. However, the curve labelled 'All items' demonstrates that when considering the subscale overall, the effect of the DIF item is very small.

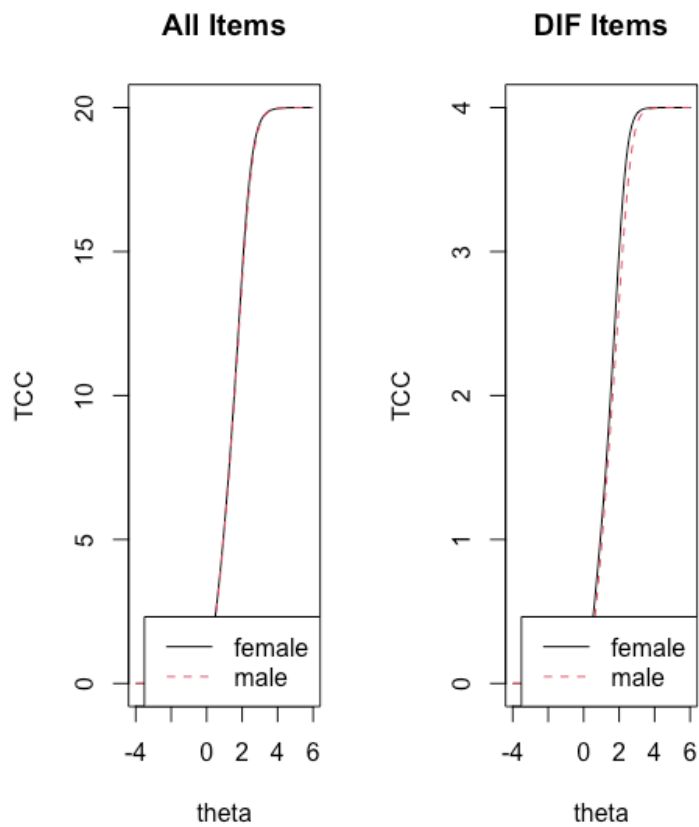


Figure S5. Impact of DIF items versus all items for item pass\_11 of Factor 3 flagged as DIF for gender. The plot labelled 'DIF items' shows the difference between how the items performs for males versus females. DIF is identified by a 'gap' between the two curves. A good item which does not demonstrate DIF would be depicted by overlapping curves for both age groups. However, the curve labelled 'All items' demonstrates that when considering the subscale overall, the effect of the DIF item is very small.