**Supplementary Material**

**S1: CFI items and sub-scale allocation**

CFI\_1. I am good at ‘‘sizing up’’ situations.—(Alternatives) — removed

CFI\_2. I have a hard time making decisions when faced with difficult situations.—(Control) reverse coded

CFI\_3. I consider multiple options before making a decision.—(Alternatives)

CFI\_4. When I encounter difficult situations, I feel like I am losing control.—(Control) reverse coded

CFI\_5. I like to look at difficult situations from many different angles.—(Alternatives)

CFI\_6. I seek additional information not immediately available before attributing causes to behavior.—(Alternatives)

CFI\_7. When encountering difficult situations, I become so stressed that I can not think of a way to resolve the situation.—(Control) reverse coded

CFI\_8. I try to think about things from another person’s point of view.—(Alternatives)

CFI\_10. I find it troublesome that there are so many different ways to deal with difficult situations.—(Control) reverse coded

CFI\_11. When I encounter difficult situations, I just don’t know what to do.—(Control) reverse coded

CFI\_12. It is important to look at difficult situations from many angles.—(Alternatives)

CFI\_13. When in difficult situations, I consider multiple options before deciding how to behave.—(Alternatives)

CFI\_14. I often look at a situation from different viewpoints.—(Alternatives)

CFI\_15. I am capable of overcoming the difficulties in life that I face.—(Control)

CFI\_16. I consider all the available facts and information when attributing causes to behavior.—(Alternatives)

CFI\_17. I feel I have no power to change things in difficult situations.—(Control) reverse coded

CFI\_18. When I encounter difficult situations, I stop and try to think of several ways to resolve it.—(Alternatives)

CFI\_19. I can think of more than one way to resolve a difficult situation I’m confronted with.—(Alternatives)

CFI\_20. I consider multiple options before responding to difficult situations.—(Alternatives)

**S2: Conduct all pre-registered analyses with a sub-sample where those who failed the attention check (N = 9) are excluded**

**Table S1**

***Descriptive statistics and bi-variate correlations (95% confidence intervals are presented in brackets)***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Variable | M | SD | 1 | 2 | 3 | 4 | 5 |
| 1 -Willingness to die | 2.31 | 1.49 | 1 |  |  |  |  |
| 2 - Willingness to fight | 1.75 | 0.83 | .47\*\*\*  (.43, .51) | 1 |  |  |  |
| 3 - Certainty trolley dilemma | 62.93 | 28.30 | -.14\*\*\*  (-.19, -.09) | .01  (-.04, .07) | 1 |  |  |
| 4 - RAT | 0.57 | 0.20 | -.09\*\*\*  (-.15, -.04) | -.09\*\*\*  (-.14, -.04) | .01  (-.04, .07) | 1 |  |
| 5 - WCST | 0.79 | 0.10 | .05  (.00, .10) | -.02  (-.08, .03) | -.01  (-.06, .04) | .21\*\*\* (.16, .26) | 1 |

Note. \*\*\* *p* < .001

**Table S2**

***Model fit indices to test Hypothesis 2***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fit index | Outcome: Willingness to die | Outcome: Willingness to die | Outcome: Choice trolley dilemma | Outcome: Choice trolley dilemma |
|  | Model 1 | Model 2 | Model 1 | Model 2 |
| χ2 test | χ2(11) = 182.73,  p = .000 | χ2(11) = 186.69,  p = .000 | χ2(11) = 186.09,  p = .000 | χ2(10) = 213.21,  p = .000 |
| CFI | 0.71 | 0.71 | 0.44 | 0.40 |
| RMSEA [90% confidence interval] | .11 [.09, .12] | .11 [.09, .12] | .11 [.10, .12] | .12[.11, .14] |
| SRMR | 0.07 | 0.07 | 0.06 | 0.07 |

We identified a small difference in RAT, but not WCST accuracy rates, between participants who chose to save rather than sacrifice themselves in the trolley dilemma (V = .01, *F*(2, 1366) = 9.00, *p* = .000). Participants who indicated that they would self-sacrifice had significantly lower RAT accuracy rates (*F*(1, 1367) = 17.76, *p* = .000; WCST: *F*(1, 1367) = 2.68, *p* = .102).

Furthermore, in the whole sample, cognitive flexibility measures were not related to certainty in the decision in the trolley dilemma (Table S1). Sub-group analysis revealed that for those who chose to save themselves, greater conviction in the decision to self-sacrifice was not correlated with either WCST (*r* = .01, *p* = .828, CI 95% [-.07, .06]) or RAT (*r* = .02, *p* = .443, CI 95% [-.04, .09]) accuracy rates. For participants who indicated that they would self-sacrifice, RAT accuracy rates were significantly negatively correlated with certainty of the choice in the trolley dilemma (*r* = -.10, *p* = .047, CI 95% [-.19, -.00]). However, the WCST accuracy rates did not correlate with certainty in the decision (*r* = -.05, *p* = .286, CI 95% [-.15, -.04]).

To complement the aforementioned analyses assessing Hypothesis 1, bi-variate correlations between the Control and Alternatives scores of the CFI and willingness to fight (Alternatives: *r* = -.09, *p* = .002, CI 95% [-.14, -.03], Control: *r* = .11, *p* = .000, CI 95% [.05, .16]) and die for the ingroup (Alternatives: *r* = .08, *p* = .003, CI 95% [.03, .13], Control: *r* = .11, *p* = .000, CI 95% [.06, .17]) were calculated. This analysis showed different result patterns than those demonstrated for the RAT accuracy scores. Notably, higher cognitive flexibility as measured by the Alternatives and Control scale correlated with a *higher* willingness to die for the ingroup. Point biserial correlations with willingness to self-sacrifice in the trolley dilemma revealed no significant relationships (Alternatives: *r* = .03, *p* = .263, CI 95% [-.02, .08], Control: *r* = .02, *p* = .496, CI 95% [-.03, .07]).

**Table S3**

***Model fit indices for additional analyses of Hypothesis 2 (Part 1)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fit index | Outcome: Willingness to die | Outcome: Willingness to die | Outcome: Choice trolley dilemma | Outcome: Choice trolley dilemma |
|  | Model 1 | Model 2 | Model 1 | Model 2 |
| χ2test | χ2(26) = 404.81,  p = .000 | χ2(26) = 411.54,  p = .000 | χ2(25) = 462.24,  p = .000 | χ2(25) = 442.80,  p = .000 |
| CFI | 0.62 | 0.61 | 0.36 | 0.39 |
| RMSEA (90% confidence interval) | .11 [.10, .11] | .11 [.10, .11] | .11 [.11, .12] | .11[.10, .12] |
| SRMR | 0.07 | 0.07 | 0.08 | 0.08 |

**Table S4**

***Model fit indices for additional analyses of Hypothesis 2 (Part 2)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fit index | Outcome: Normative pro-group behaviour | Outcome: Normative pro-group behaviour | Outcome: Normative pro-group behaviour | Outcome: Normative pro-group behaviour |
|  | Model 1 (original) | Model 2 (original) | Model 1 (adaption) | Model 2 (adaption) |
| χ2test | χ2(11) = 182.73,  p = .000 | χ2(11) = 176.00,  p = .000 | χ2(26) = 404.81,  p = .000 | χ2(26) = 403.13,  p = .000 |
| CFI | 0.57 | 0.58 | 0.52 | 0.52 |
| RMSEA (90% confidence interval) | .11 [.09, .12] | .11 [.09, .12] | .10 [.10, .11] | .10[.10, .11] |
| SRMR | 0.07 | 0.06 | 0.07 | 0.07 |

Hypothesis 3 was also extended by including the self-reported cognitive flexibility scores, Control and Alternatives. We identified no difference for either outcome variable (Alternatives: *F*(1, 1367) = 1.25, *p* = .264; Control: *F*(1, 1376) = .46, *p* = .496) for participants who indicated that they would self-sacrifice vs. save themselves in the trolley dilemma. This result is in line with the results shown for WCST but not our evidence for RAT accuracy rates.

In the whole sample, conviction in the decision in the trolley dilemma was negatively correlated with Alternatives (*r* = -.08, *p* = .004, CI 95% [-.13, -.02]) and positively correlated with Control (*r* = .10, *p* = .000, CI 95% [ .05, .16]) scores. The sub-group analysis showed that for those who chose to save themselves, the relationships were significant (Alternatives; *r* = -.10, *p* = .002, CI 95% [-.16, -.04], Control: *r* = .11, *p* = .000, CI 95% [.05, .17]). In the sub-group that chose to self-sacrifice, only the sub-scale Control was significantly, *positively* related with conviction in the trolley decision (*r* = .11, *p* = .027, CI 95% [.01, .20]) (Alternatives: *r* = .01, *p* = .824, CI 95% [-.08, .11]).

**S3: Mini meta-analysis**

We conducted a mini meta-analysis combining data from our study, the original study (Study 1, Zmigrod et al., 2019a) as well as Study 2 in Zmigrod et al. (2019a) in order to synthesis the evidence regarding a relationship between cognitive flexibility and violent extremist behaviour intentions. Using Goh et al.’s (2016) template, a fixed effects meta-analysis of three values was computed: (a) average of correlations between RAT and WCST accuracy rates, as well as Alternatives and Control CFI sub-scales and willingness to fight as well as willingness to die as identified in our study (*r* = .00375, *N* = 1378); (b) average of correlations between RAT and WCST accuracy rates and willingness to fight as well as willingness to die as identified in Study 1, Zmigrod et al. (2019a; *r = -*.17575, *N* = 304); c) average of correlations between RAT and WCST accuracy rates as well as Alternative Uses Test accuracy rates and willingness to fight as well as willingness to die as identified in Study 2, Zmigrod et al. (2019a; *r* = -.121, *N* = 743). A mean correlation of *r* = -.057, CI 95% [-.097, -.017] points to a small negative association.

Goh, J. X., Hall, J. A., & Rosenthal, R. (2016). Mini meta‐analysis of your own studies: Some arguments on why and a primer on how. *Social and Personality Psychology Compass*, *10*(10), 535-549. <https://doi.org/10.1111/spc3.12267>

**S4: Correlations between cognitive flexibility measures**

The additional analyses revealed striking discrepancies between different measures of cognitive flexibility. To explore these discrepancies, we conducted correlations between the CFI sub scales as well as RAT and WCST accuracy rates. In line with previous research, the Alternatives sub-scale correlated positively with both test scores (RAT: *r* = .08, CI 95% [.03, .13], *p* = .002; WCST: *r* = .16, CI 95% [.11, .21], *p* = .000). The Control sub-scale was not correlated with either test (RAT: *r* = .01, CI 95% [-.04, .07], *p* = .607; WCST: *r* = .04, CI 95% [-.01, .09], *p* = .097). The sub-scales themselves were moderately positively correlated (*r* = .22, CI 95% [.17, .27], *p* = .000).