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2 **Transcultural Pathways to the Will to Fight**

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20 **This file includes:**

21 Abstract

22 Significance Statement

23 Main Text

24 References

25 Table 1

26 Figures 1-2

27

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ABSTRACT

In 2022 the “Will to Fight Act” was referred to the U.S. Congress urging attention to measuring and assessing will to fight. That Bill was not enacted and evaluation efforts within the political and military establishment remain contentious, fragmented, and meager. This likely will persist, along with attendant policy failures and grievous costs, without awareness of research that the social and psychological sciences reveal on the will to fight. We illustrate such research using converging data from a multi-method and multi-cultural approach, including field and online studies from the Middle East, North Africa, and Europe. These studies reveal specific psycho-social pathways, within a general causal framework, that predict willingness to make costly sacrifices, including to cooperate, fight and die in war and sustained conflict. From the continuing strife in Iraq to embattled Ukraine, 31 studies were conducted in 9 countries with nearly 12,000 participants. These include people in longstanding conflicts, refugees, imprisoned jihadists and gangs, U.S. military, studies in Ukraine before and during the current war, and rolling studies with a European ally of Ukraine. Results provide evidence for a mediation model of transcultural pathways to the will to fight. Building on our previous behavioral and brain research, on the battlefield in Iraq, with violent extremists, and with U.S. military, the linear mediation yielding the will to fight involves identity fusion, perceived spiritual formidability, and trust. The model, a variation on “The Devoted Actor Framework,” applies to primary reference groups, core cultural values, and leaders.

SIGNIFICANCE STATEMENT

Upon entry into WWII, the U.S. committed to unconditional victory through overwhelming force. But paramount focus on material capacity to the neglect of “will to fight” in subsequent regional wars – Vietnam, Iraq, Afghanistan – has carried woeful costs in lives, treasure, and policy failures. This nearly happened with Ukraine. Despite political and military leaders acknowledging its importance *after the fact*, consensus remains that will to fight is “imponderable.” Without rigorously assessing non-material sensibilities, including among civilian populations, conflict can appear intractable or only resolvable with massive force; and the U.S. and partners may continue to overrate or underrate allies, armies, and peoples in disregard of the spirit that can only arise from one’s own cultural identity and values (1).

MAIN TEXT

INTRODUCTION

On July 28, 2022 U.S. House Bill H.R. 8560, the “Will to Fight Act” (2), was referred by Congressmen Jason Crow (D-CO) and Peter Meijer (R-MI) to the House Permanent Select Committee on Intelligence. The bill sought to empower the House and Senate:

To direct the Director of National Intelligence to submit to Congress a report relating to analyses of the military will to fight and the national will to fight with respect to the Governments of Ukraine, Afghanistan, and Iraq, and for other purposes.

The bill noted failure of U.S. intelligence to “accurately assess the will of Ukrainian forces to fight in opposition to a Russian invasion,” the wrongful estimate by the intelligence community “that the Afghan government’s forces could hold out against the Taliban for as long as 2 years” after a US withdrawal, and “the rapid advance of the Islamic State in Syria and Iraq and near total-collapse of the Iraqi security forces [that] appeared to take policymakers of the United States by surprise.”

The bill advocated evaluating “the methodology of the intelligence community for measuring [and] assessing the military will to fight and the national will to fight”; that is, the resolve to fight on for an

76 objective “even when the expectation of success decreases or the need for significant political, economic,
77 and military sacrifices increases.” Congress has failed to act on the bill or its recommendations.

78 Yet misjudging both allies’ and adversaries’ will to fight is recurrent among military and political
79 decision makers, with often disastrous results for planners and the public (3). In Congressional testimony,
80 Gen. Scott Berrier, US Defense Intelligence Agency director, acknowledged misjudging Ukraine’s ability
81 to resist Russia: “I questioned their will to fight. That was a bad assessment” (4). Gen. Mark Milley,
82 Chairman of the US Joint Chiefs of staff, blamed “strategic failure” in Afghanistan on neglecting the
83 “intangible” factor in war: “We can count the trucks and guns and the units and all that. But we can’t
84 measure a human heart from a machine” (5). As President Biden put it: “We gave [Afghan forces] every
85 tool they could need.... What we could not provide them was the will to fight” (6). When ISIS routed US-
86 backed Iraqi government forces despite vastly inferior manpower and firepower, then-US President
87 Obama endorsed (7) the judgement (8) of his Director of National Intelligence: “We underestimated the
88 Viet Cong... we underestimated ISIL and overestimated the fighting capability of the Iraqi army... It
89 boils down to predicting the will to fight, which is an imponderable.”
90

91 At a May 2022 U.S. Senate Armed Services Committee hearing (9), Director of National Intelligence
92 Avril Haines remarked that it’s “quite challenging to provide effective analysis... and we’re looking at
93 different methodologies for doing so.” The only methodology invoked was public opinion polling. In line
94 with some polling (10), the State Department’s Bureau of Intelligence and Research did surmise that the
95 Ukrainians would resist; however, a senior State department official duly noted that “assessing a
96 population’s will to fight is an art, not a science, that defies purely data-driven analysis.”
97

98 Nevertheless, recent work from behavioral and brain science reveals robust, data-driven psycho-social
99 factors for assessing will to fight. For several years a research partnership between Artis International,
100 Oxford University’s Changing Character of War Centre, Spain’s Universidad Nacional de Educación a
101 Distancia (UNED), and the Universitat Autònoma de Barcelona has focused on willingness to fight and
102 other costly sacrifices: from giving up material or social benefits to abandoning family and launching
103 suicide attacks.
104

105 The conceptual frame is the “Devoted Actor” (11), which focuses on the spiritual dimension of human
106 conflict (12). Devoted actors are individuals who share non-negotiable values with members of a group
107 with which they are viscerally united. They are particularly prone to make extreme and costly sacrifices
108 when personal identities “fuse” (13) with collective identity in a primary reference group (14) – often
109 expressed as a family-in-arms (15) of imagined kin (16) – and in defense of core cultural values that are
110 highly cherished (17) and often held to be sacred (18).

111 Devoted actors resemble incarnations of what Durkheim termed the “collective conscience” of society
112 (19): that is, paragons of a solidary system of social relationships, imbued with shared values (as with
113 religions, nations, and tribes), and by no means strictly bound to representing and responding to the
114 mundane and material forms and necessities of society (20). For example, the idea of a hero who
115 sacrifices for others forms part of the collective conscience of many societies. Heroism and martyrdom
116 transcend mundane moral principles of reciprocity, such as quid pro quo or the Golden Rule, yet can
117 inspire long-term advantage for low-power groups against materially better endowed groups (21).
118

119 The studies presented here, along with our previous investigations in real-world conflicts, show ways that
120 devoted actors, whose personal identities are fused within a unique collective identity that is perceived to
121 be spiritually formidable and trustworthy, willingly make costly sacrifices to fight and even die when that
122 identity is threatened. We test the specific proposition that will to fight can be predicted by fusion with a
123 cherished group (e.g., country, ally, battalion), individual (e.g., a leader) or value/cause (e.g., religion,
124 freedom, democracy) through two psycho-social mediators: (perceived) spiritual formidability and trust.

125 Focus on these mediators does not result from apriori theorizing or speculation; they spontaneously arose
126 as candidate mediators in interviews with frontline combatants and militants during fieldwork conducted
127 in different conflicts, with populations from different cultures, who perceived themselves fighting for
128 something. We propose a linear model whose components (fusion with people or value, spiritual
129 formidability, trust) involve distinct but related cognitive capacities and evolutionary histories (outlined in
130 the discussion section), which combine in a specific, directed way to mobilize cooperative, self-sacrificial
131 action in situations of group conflict. The constituent psycho-social processes of the linear model of will
132 to fight are identity fusion, spiritual formidability, and trust, which we briefly describe below.

133
134 *Identity fusion* is a visceral feeling of oneness with a group, individual, value, or abstraction, that provides
135 a strongly irrevocable sense of personal agency, and visceral responsibility toward the target of fusion.
136 Highly fused individuals feel that they and the target of fusion synergistically strengthen each other,
137 which fosters the perception that, together, they are invulnerable. Identity fusion has been successfully
138 examined in the field as a reliable predictor of will to fight. Meta-analyses indicate that identity fusion is
139 the strongest predictor of radical intentions among dozens of candidates (22, 23).

140
141 *Extension of identity fusion with values* aims to take advantage of measures of fusion with persons (see
142 *SI Appendix*) to measure commitment to cherished values, such as sacred values. “Sacred values” refer to
143 preferences for beliefs, practices, or objects that people consider non-fungible with material goods and
144 non-negotiable with profane matters (e.g., compromise over sacred land or law for economic or social
145 benefit) (24, 25). Sacred values can be religious or secular, like God or Nation (11, 20). They tend to be
146 very stable and unyielding to transitory social pressures, and they resist spatial or temporal discounting
147 (26, 27). The stronger the attachment to such values, the greater the willingness to endure conflicts
148 involving them (17, 18).

149
150 *Spiritual formidability*, along with physical formidability, are subdimensions of the formidability
151 representation hypothesis, which is the sum of another actor’s or coalition’s tactical assets and liabilities
152 compared to one’s own. Their assessment is critical to deciding whether to fight, flee, or negotiate in
153 situations of potential conflict. Formidability is represented by two physical dimensions, stature and
154 muscularity (28). Physical formidability combines all factors that could contribute to decisions in violent
155 contexts, including psycho-social factors (29). In this vein, our work supports use of the same visual
156 measures of relative size and strength for both physical and spiritual formidability, distinguishing them
157 only by different verbal frames (30, 31).

158
159 *Trust* in an individual or members of a group is the expectation that they are sincere and mean you good
160 and fosters development and maintenance of well-functioning relationships (32, 33). Trust in the leader,
161 in the collective, and its members is associated with self-sacrifice (34). Thus, in a study of operation
162 “Iraqi Freedom” in 2003, U.S. soldiers’ willingness to fight was at least partly expressed in terms of trust
163 between buddies (“watching your back”) and in leaders and the army to do right by them (35). Research
164 suggests that one underlying mechanism through which identity fusion may predict will to fight is via
165 trust in the source of fusion. For example, strongly fused individuals trust that members of their country
166 or religious group would never willingly harm them (36). Experiencing trust involves an interplay of
167 values, attitudes, moods and emotions, and may become unconditional when shared values are the basis
168 of trust (38). For shared values greatly reduce the transaction costs of social exchange and cooperation,
169 and lead to trust through reliability in how others will act in certain circumstances; and if there is
170 reliability that others will come to aid in life-and-death circumstances, then trust is likely to be absolute.

171
172 In previous research, we examined contributions of identity fusion (Fig. S1), sacred values, and spiritual
173 formidability (Fig. S2) to costly sacrifices made by frontline combatants in Iraq (11, 12), including ISIS,
174 Kurdish PKK and Peshmerga, Arab Sunni militia, and Iraqi army. In 2015 when the ISIS frontline was
175 stable, and in 2016 when the allied offensive to retake Mosul commenced, field surveys revealed that

176 willingness to fight and die was greatest for those who: viscerally bonded with their comrades in arms,
177 were fighting to uphold sacred values, and "spiritual formidability" – be it their own group, allies, or
178 enemies – as more critical than "physical formidability" (firepower, manpower). Fighters recurrently
179 described this as "spirituality with bravery" to defend what is most cherished, "what is in our heart" and
180 "strength of belief in what we are fighting for." Only the secular (Marxist-Leninist) Kurdish PKK fighters
181 matched religious ISIS fighters for willingness to sacrifice for their cause (validated in terms of casualties,
182 time at the front, and so forth), including readiness to abandon comrades deemed willing to compromise
183 their beliefs. The US considers ISIS and PKK to be terrorist organizations, which may feed resistance in
184 learning proactive lessons from them.

185
186 In parallel, neuroimaging probed willingness to make costly sacrifices among Moroccan immigrants in
187 Spain who professed support for armed jihad and strict conformity with Sharia, and among supporters of
188 Lashkar-e-Taiba, a Pakistani associate of Al-Qaeda. Participants indicated greater readiness to sacrifice
189 against violation of sacred values (e.g., caricatures of Prophet Mohammed) than non-sacred values (e.g.,
190 women refusing the veil), with neuroimaging during processing of sacred values showing inhibition of
191 activity in brain areas associated with cost-benefit and deliberative reasoning (38) but enhanced activity in
192 areas linked to subjective value (39) and rule-bound judgements (40) ("do it because it's right," whatever
193 cost or consequence). Moreover, perception of social exclusion resulted in sacralization of hitherto
194 important but non-sacred values and increased willingness to sacrifice.

195
196 This converges with research showing that fused individuals who feel excluded become more willing to
197 fight and die (41), and complements findings from Iran that material disincentives to abandon the nation's
198 nuclear energy program (international sanctions, a version of political exclusion) only increases support
199 as a sacred mission linked to national sovereignty and religion (42). Further brain and behavioral studies
200 indicate that far-right extremists also are cued to core values. For example, in social media they more
201 readily share misinformation about core values (e.g., immigrant threats to cultural purity), with responses
202 on this score during brain imaging activating a neural network associated with identity processes (43).

203
204 Collaborating with the U.S. Air Force, we found in studies in Palestine, Iraq, Morocco, and Spain that
205 perception of personal spiritual strength is more strongly associated with willingness to sacrifice than
206 physical formidability (31). Further study among Air Force cadets and replicated in a large sample of
207 ordinary European citizens, showed this effect mediated by a stronger loyalty to the group. Together with
208 frontline studies in Iraq, also replicated among large samples of ordinary Europeans, these findings
209 strongly suggest that spiritual formidability – whether of a person or a group – is a primary determinant of
210 will to fight across cultures, and this motivates people to fight at great risk through loyal bonds.

211
212 Summarizing our previous studies, we have shown that identity fusion, commitment to core cultural
213 values, and spiritual formidability are independent predictors of willingness to make costly sacrifices,
214 including fighting and dying. In the studies below, we aim to reveal likely causal relationships between
215 these factors, as well as the role of trust, which is intimated but not analyzed in our previous studies.

216
217 The notion of trust as a driver of will to fight, and of distrust as a brake on will to fight, spontaneously
218 emerged in field interviews with combatant groups on the ISIS frontline (11,12), in studies conducted
219 below with imprisoned jihadists and Syrian refugees in Spain (Studies 1 and 3 respectively) and with
220 displaced persons in Iraq (Studies 6 and 7). In field studies trust was expressed in different ways: 1. with
221 reference to groups, individuals, or values (e.g., PKK fighter: "I trust our leader, Abdullah Öcalan", "I
222 trust in [the value of] Kurdeity"); 2. in a comparative context (e.g., Peshmerga fighter: "I trust in
223 Kurdistan, not in Iraq because the Iraqi army collapsed and ran from ISIS without a fight"); or 3. as
224 something that could compel individuals to abandon a group, leader, or value (ISIS fighter: "If
225 the *mujahedin* [holy warriors] were to reject or compromise on *Sharia* [Islamic law], I would no longer
226 trust them"). In each case, further expressions of trust highlighted the reliability, helpfulness, empathy and

227 faith in the group or individual trusted, and in the worth and truth of what the trusted group, individual, or
228 value stands for. These aspects of trust are consistent with wide-ranging research from other sources (44).

229
230 We use *fusion with values* as a proxy for the more complex notion of sacred values (involving immunity
231 to tradeoffs, resistance to social pressure, blindness to exit strategies, disregard for temporal and spatial
232 discounting) (45). Two previous findings justify this. First, in a study of 1600 “prochoice” and “pro-life”
233 advocates, fusion with values was a strong predictor of sacred values and vice versa (46). Second, in a
234 recent study of convicted jihadists (30), violent Latino gang members, and Muslim and non-Muslim
235 ordinary criminals in 35 Spanish prisons, we found that jihadists: 1. unlike other inmates remained fused
236 with their group and value over time in prison, 2. sacrifice more for group and value, 3. reveal shared
237 value as a key enabling factor for fusion with group, and 4. show more sacrifices for value than for group.
238 These findings closely track results with those frontline combatants in Iraq most ready to self-sacrifice for
239 value even more than group, further justifying fusion with values as a proxy for sacred values.

240 241 **RESULTS**

242
243 Here we introduce, and test, a general linear model revealing the psycho-social pathways to the will to
244 fight, applicable transculturally and functionally for groups, leaders, and core values. Using a mix of data
245 collection strategies, we conducted 31 studies with nearly 12,000 participants from 9 countries to test our
246 hypotheses that: 1. identity fusion is more strongly associated with will to fight and costly sacrifices
247 through spiritual than physical formidability; 2. spiritual formidability is associated with, and predicts,
248 will to fight; 3. trust is positively associated with, and predicts, will to fight; 4. the positive relation
249 between spiritual formidability and costly sacrifices is mediated by trust; 5. fusion is positively associated
250 with trust; 6. fusion is positively associated with will to fight, first, through spiritual formidability, and
251 second, through trust; 7. finally, the linear model associating fusion with will to fight is applicable to
252 groups (ingroups and allied outgroups), values (e.g., religion, honor, democracy, freedom) and individual
253 leaders in real-world conflicts, and predicts expression of the will to fight but also consequent behaviors.
254 Table 1 summarize the characteristics of the samples and the main findings for each study.

255
256 We organize the studies into two sets. A first set including 14 studies examine the cross-sectional and
257 causal relations between fusion, physical and spiritual formidability, trust, and the will to fight. Next, 17
258 studies test a linear model through which fusion predicts will to fight via spiritual formidability first, and
259 trust second, applicable to groups, leaders, and values (see *SI Appendix* for measures for each study,
260 alphas for each scale, and strategy for data collection using Qualtrics or the self-developed Artis Magi-
261 Wise survey platform that enables combining traditional scales with dynamic measures; Tables S1A-S1B
262 provide main characteristics of studies).

263
264 *For the first set*, two field studies in Spanish prisons through face-to-face interviews with jihadists (Study
265 1), and Latino gang members (Study 2), examined whether these data replicate previous lab findings that:
266 fusion with a group (jihadists, gang members) is associated with will to fight through physical
267 formidability (47), but this association is stronger through spiritual formidability. We also tested whether
268 fusion with a core value (religion for Jihadists, honor for Latino gangs) predicts willingness to make
269 costly sacrifices for that value. One field study (Study 3) with refugees from Syria in Spain tested the
270 relation between spiritual formidability of refugees from Syria, and will to fight; and a controlled online
271 experiment (Study 4) probed causal evidence of the effects of spiritual formidability on costly sacrifices.

272
273 Before examining the role of trust in the model, an online study in Spain explored what trust in people
274 close to oneself means (Study 5). Studies 6-7 inspected the relation between trust and will to fight for a
275 group. These were conducted in the field through a series of individual face-to-face interviews with
276 internally displaced persons in several camps in Iraq (Study 6), and with young Iraqi participants
277 displaced in Mosul just after liberation from ISIS control (Study 7) (48). Next, two studies were aimed at

278 replicating the relationship between trust and will to fight during ethnographic work in Jemaa Mezuak, a
279 neighborhood in Tetuan, Morocco associated with previous terrorist bombing campaigns (49), including
280 the Madrid train bombings (16) (Study 8), and an online study in Spain (Study 9). An experimental study
281 tested the causal effect of trust on will to fight (Study 10).

282
283 Three cross-sectional studies tested whether the effect of spiritual formidability on will to fight is
284 mediated by trust in the group: a field study in the Sidi Moumen neighborhood of Casablanca, associated
285 with previous terrorist bombings (Study 11), a field study with Palestinians across Gaza and the West
286 Bank (Study 12), and an online study with general population in Spain (Study 13). Another field study
287 with US Air Force Cadets examined the relation between fusion and trust in the group (Study 14).

288
289 Once fusion, spiritual formidability, trust, and will to fight were examined separately, *a second set of*
290 *studies* tested the full linear model. The model was first inspected online in four countries: Palestine
291 (Study 15), Lebanon (Study 16), Turkey (Study 17) and the United Kingdom (Study 18), and in the field
292 in Palestine (Study 19).

293
294 After that, seven cross-sectional studies focused on an actual armed conflict and examined whether the
295 linear model applies to the will to fight on behalf of an ally. Seven studies with Spaniards tested whether
296 being fused with Ukraine was positively associated with the will to fight for Ukraine through spiritual
297 formidability of, and trust in, Ukraine (Studies 20-26). Studies 23-26 also tested whether formidability of,
298 and trust in, Ukraine's President Zelenskyy, also mediated between fusion and readiness to sacrifice for
299 Ukraine. Another study (Study 27) applied the model to sacrifices for values, examining if fusion with
300 democracy predicts sacrifices for democracy through spiritual formidability of, and trust in, democracy.

301
302 Three studies in Ukraine examined the roles of country and values (Democracy, Freedom) in predicting
303 will to fight: a first study shortly before armed conflict with Russia began (Study 28), a second study
304 during Russia's initial offensive (Study 29), and a third study eight months later during a large-scale
305 Ukrainian counteroffensive (Study 30). A final study (Study 31) conducted with allies of Ukraine ten
306 months into the conflict investigated whether the linear model predicts actual behaviors.

307 308 **Studies 1-2. Fusion, formidability, and will to fight among prison convicts.**

309
310 The first set of Studies were conducted in Spanish prisons with individuals incarcerated for crimes related
311 to their strong convictions toward a group or value, including extreme behaviors such as murder. For
312 most participants, this was the first time they were solicited for scientific research. Spain's government
313 provided access to all prisoners in the penal system, under conditions conducive to candid observation.
314 No one other than a member of our research team and a prisoner were present in the room, even with
315 inmates kept in isolation. The research team did not have access to prisoner files for selection of
316 participants. Authorized professionals (psychologists, social workers) selected inmates who satisfied the
317 inclusion criteria and said they wanted to collaborate in the research even though there would be no
318 consequences for them. Standard human subjects protections were acknowledged through informed
319 consent (30). Participants were identified by a random code and responses anonymized. Authorities had
320 no access to individual prisoner responses (see *SI Appendix*).

321
322 Study 1 involved 122 interviews in 31 prisons with inmates from 16 countries implicated in jihadist
323 terrorism. These included returning ISIS foreign fighters, participants in the 2004 Madrid train-bombing
324 plot, or in the August 2017 vehicle attack on pedestrians in Barcelona. Study 2 involved 152 interviews in
325 23 prisons with inmates from 14 countries convicted of crimes associated with violent Latino gangs (e.g.,
326 Trinitarios, Latin King). Critical measures were: fusion with their primary reference group (Muslim
327 Community vs. own Gang), and their most cherished value (religion vs. honor); physical and spiritual
328 formidability of their respective group; and costly sacrifices they are willing to make while in prison for

329 their group and most cherished value (determined in previous research where they respectively choose
330 religion and honor as values for which they would not accept any trade-off) (30). For Latino gangs, honor
331 influences motivations, emotions, cognitions, and behaviors (50), and provides meaning and logic to gang
332 violence (51) in interpersonal, intrapersonal and intergroup relationships (52).

333
334 In Studies 1-2, spiritual formidability correlated positively with fusion and sacrifices for the group more
335 strongly than physical formidability (Table S2). Testing the hypothesis that fusion with a group is more
336 strongly associated with will to fight through spiritual formidability, we performed a mediation analysis
337 using Hays' PROCESS (Macro Model 4) (53). Controlling for time in prison, we included fusion as
338 predictor, spiritual and physical formidability as parallel mediators, and costly sacrifices as outcome. In
339 Study 1, for fusion and sacrifices for the group, results indicated a significant indirect effect via both
340 physical formidability, IE = 0.05, 95% CI = 0.0084 to 0.1141, and spiritual formidability, IE = 0.12, 95%
341 CI = 0.0277 to 0.2170. For fusion and sacrifices for religion, spiritual formidability alone was significant,
342 IE = 0.11, 95% CI = 0.0254 to .2309. For Study 2, for fusion and sacrifices for the group, results showed
343 significant indirect effects via both physical formidability, IE = 0.03, 95% CI = 0.0028 to 0.0562, and
344 spiritual formidability, IE = 0.10, 95% CI = 0.0474 to 0.1548. For fusion and sacrifices for honor, only
345 the indirect effect of spiritual formidability was significant, IE = 0.07, 95% CI = 0.0140 to .1420. In both
346 studies the indirect effect via spiritual formidability was stronger than via physical formidability (Fig.
347 S3).

348 349 **Studies 3-4: Spiritual formidability and will to fight.**

350
351 A decade ago, conflict in Syria left some seven million refugees distributed over more than 100 countries.
352 Some travelled to Spain, where they faced language barriers, lack of employment, social exclusion, and
353 suspicion from outsiders that Islamist terrorists were among them. Nonetheless, we were welcomed by
354 those in our convenience sample, who allowed us to conduct Study 3.

355
356 Study 3 ($n = 37$) consisted of interviews with refugees from Syria in Spain, including measures of
357 physical and spiritual formidability of the refugees, and adapted scales of costly sacrifices and willingness
358 to fight and die for Syrian refugees. Participants were recruited through a snowball procedure and
359 interviewed by a psychologist with research experience among vulnerable populations. Interviews
360 occurred in private or semi-private spaces in which participants felt comfortable. Standard human subjects
361 protocols were as in Studies 1-2. When necessary, participants were also referred to organizations that
362 promote refugee rights and their socio-psychological needs.

363
364 Study 4 ($n = 476$) was conducted online with Spanish participants using an experimental design (*SI*
365 *Appendix*). They were randomly assigned to one of two conditions introducing the results of a fictitious
366 investigation. Participants in the *high spiritual formidability condition* learned that most members of their
367 country consider Spain strong spiritually; those in the *low spiritual formidability condition* learned that
368 most members of their country consider Spain weak. Participants then responded to a questionnaire to rate
369 the physical and spiritual formidability of their home country, to a scale of costly sacrifices for their
370 country, and to a manipulation check.

371
372 In Study 3 we anticipated that spiritual formidability of refugees would be positively associated with
373 costly sacrifices and willingness to fight and die for them. In Study 4, we expected that perception of
374 spiritual formidability, and costly sacrifices, would be stronger in the high spiritual formidability
375 condition. In addition, the experimental manipulation's effect on costly sacrifices should be mediated by
376 increased personal perception of the group's spiritual formidability.

377
378 Results from Studies 3 and 4 support our hypothesis (Table S3 for Means, SDs, correlations). Study 3
379 showed that spiritual formidability significantly correlated with costly sacrifices, and willingness to fight

380 and die for fellow refugees. In contrast, physical formidability did not correlate significantly with these
381 variables, $r_s < .21$, $P_s > .23$. In Study 4 a MANOVA yielded an effect of the experimental manipulation
382 on perception of the group's spiritual formidability and costly sacrifices for the group. Participants
383 displayed higher levels of spiritual formidability and costly sacrifices in the high spiritual formidability
384 condition, $F(1,474) = 96.79$, $P < .001$, $\eta^2 = .17$, and $F(1,474) = 25.90$, $P < .001$, $\eta^2 = .05$ respectively. The
385 effect of the experimental manipulation on perception of the group's physical formidability was not
386 significant, $F(1,474) = 2.93$, $P = .088$, $\eta^2 = .01$.

387
388 To test whether the effect of the manipulation on costly sacrifices would be mediated by personal feelings
389 of their group's spiritual formidability, we performed bootstrapped (n boots = 5,000) mediation analysis
390 with PROCESS (Model 4) (53). Results reached significance only for the indirect effect via spiritual
391 formidability, IE = 0.11, 95% CI 0.0627 to 0.1575 (Fig. S4).

392 393 **Study 5: The meaning of trust.**

394
395 After examining the positive association between fusion, spiritual formidability and will to fight, we
396 move on to trust, a factor spontaneously evoked in the context of will to fight in previous frontline
397 fieldwork, with refugees, and in prisons. Based in part on these spontaneous expressions, we conducted a
398 study to examine what individuals may freely mean by trust.

399
400 Study 5 (n = 583) was conducted online with Spanish participants who were asked to indicate what trust
401 in someone they know well or in a close group means for them. Qualitative analysis using NVivo
402 software distributed the responses into five main categories: 1. *Reliability* = expectation of confidence and
403 certainty (e.g., “knowing that such person/group will behave as you expect”); 2. *Support* = expectation of
404 being cared and helped (e.g., “counting on their support in front of any adversity”); 3. *Delegation of*
405 *responsibility* = delegate to others decisions that affect us personally or people we care about (e.g., “give
406 up the ability to decide what affects you or who you care about”); 4. *Self-verification* = being understood
407 and as one perceives themselves (e.g., “I can be, think and behave as I am because I feel that they
408 understand me”); 5. *trustworthiness or being trustworthy* = characteristics of the target of trust that make
409 them trusted (e.g., “set of attitudes that a person or a group transmit unconsciously”). From the full
410 sample, 530 participants provided valid responses. Results show that 36.78% of participants defined trust
411 as reliability, 23.02% as support (helpful and caring), 13.02% as delegation of responsibility (faith in
412 others deciding for me), 13.96% as self-verification (including others' ability to empathize), and 13.21%
413 as being trustworthy (feelings of trustworthiness). These results converge with field expressions of trust.

414 415 **Studies 6 to 10: Trust and will to fight.**

416
417 This package includes a sample of Syrians who, during the conflict with the Islamic State, remained in
418 camps in Iraq as internally displaced persons (Study 6), and a sample of young Iraqis displaced around
419 Mosul after its liberation from ISIS (Study 7). We also had face-to-face interviews with individuals under
420 risk of radicalization from living in urban Moroccan neighborhoods associated with terrorist bombing
421 campaigns (Study 8); and two online studies with a general population sample to see if findings replicate
422 (Studies 9-10).

423
424 Participants were asked about the following: in Study 6 (n = 78) trust in the Iraqi Army, and costly
425 sacrifices for them; in Study 7 (n = 72) to what extent they trusted more in the Iraqi Army than other
426 groups and willingness to fight and die for the Sunni Arab Community; in Study 8 (n = 401), trust in
427 Moroccans compared to other groups, and adapted versions of costly sacrifices and willingness to fight
428 and die for Moroccans; and in Study 9 (n = 432) trust in, and costly sacrifices for, their country.

429

430 Study 10 ($n = 611$) used an experimental design concerning participants' opinions regarding results of
431 studies fictitiously conducted by the Spanish Sociological Research Center (CIS). Participants in the
432 *experimental condition* learned that according to recent investigation, regardless of the current health
433 situation (COVID) and leaving aside political issues, most Spaniards (78.3%) maintained high confidence
434 in their country. Participants in the *control condition* read the report of an investigation indicating most
435 Spaniards supported use of electric cars. Participants responded to a questionnaire including measures of
436 trust in, and costly sacrifices for, their country. A final attention check asked participants to choose the
437 content of the report they read.

438
439 Results from Studies 6–10 supported the positive association between trust and willingness to fight (Table
440 S4 for Means, SDs, correlations). Study 6 showed that trust in the Iraqi Army significantly correlated with
441 costly sacrifices for a unified Iraq. Study 7 indicated that trusting more in the Iraqi Army than in other
442 militias significantly correlated with willingness to fight and die for the Sunni Arab Community. In Study
443 8, trust in Moroccans significantly correlated with costly sacrifices and willingness to fight and die for
444 Moroccans. In Study 9, trust in the country significantly correlated with costly sacrifices for it.

445
446 Results from Study 10 intimated a causal effect of trust on costly sacrifices, mediated by increasing
447 personal feelings of trust in the country. A MANOVA yielded an effect of the experimental manipulation
448 on trust in, and costly sacrifices for, the country. Participants displayed higher levels of trust and costly
449 sacrifices in the experimental condition than control condition, $F(1,545) = 9.78, P = .002, \eta^2 = .02, M =$
450 $2.92, sd = 1.12$ vs. $M = 2.60, sd = 1.05$, and $F(1,545) = 9.56, P = .002, \eta^2 = .02, M = 1.08, sd = 1.33$ vs. M
451 $= 0.74, sd = 0.88$, respectively. Trust and costly sacrifices were significantly though weakly correlated, r
452 $(545) = 0.17, P = .001$.

453
454 To test whether the positive relation between trust and costly sacrifices is mediated by personal feelings
455 of trust, we performed bootstrapped (n boots = 5,000) mediation analysis with PROCESS (Model 4) (53).
456 Analyses showed a significant indirect effect via personal feelings of trust in the country, $IE = 0.04$,
457 95% CI 0.0096 to 0.0886 (Fig. S5).

458 459 **Studies 11-13: Spiritual formidability is related to will to fight through trust.**

460
461 These studies were conducted in Moroccan neighborhoods linked to previous terrorist campaigns, across
462 Gaza and the West Bank in Palestine, and in Spain ($Ns = 476, 730$ and 350 , respectively) to examine the
463 association between spiritual formidability, trust, and will to fight in different cultures, using different
464 methods. For Studies 11–13, the questionnaire included measures of spiritual and physical formidability,
465 trust in group, and will to fight for the group (*SI Appendix*). We anticipated that: 1. spiritual formidability
466 trust and will to fight are positively related, and 2. the positive relation between spiritual formidability and
467 will to fight is mediated by trust.

468
469 Spiritual formidability positively correlates with physical formidability, trust, and will to fight for the
470 group in the three studies (Table S5 for Means, SDs and correlations); and trust positively correlates with
471 will to fight in the three studies (physical formidability only correlates positively with trust and will to
472 fight in Studies 12-13). To test whether trust mediates the positive relation between spiritual formidability
473 and will to fight (controlling for physical formidability), we performed a series of bootstrapped (n boots =
474 5,000) mediation analysis with PROCESS (Model 4) (53). Indirect effects were significant in the three
475 studies (Fig. S6), indicating that spiritual formidability is positively associated with will to fight through
476 trust.

477 478 **Study 14. Association between fusion and trust among U.S. Air Force Cadets.**

479
480 While previous studies have included perpetrators of violence (Studies 1-2), victims (Studies 3, 5, 6),

481 While previous studies have included perpetrators of violence (Studies 1-2), victims (Studies 3, 5, 6),
482 individuals under risk of radicalization (Studies 7, 10), or general population, (Study 4, 8, 9, 11, 12), the
483 present study was conducted with those who defend their country against potential enemies. Fusion is not
484 a personality trait (54); hence, fusion should be related to trust but only on targets associated with the
485 source of fusion. To test this, 120 US Air Force Academy cadets responded to a questionnaire including
486 measures of: fusion with cadets, their squadron, the Air Force, and friends outside Air Force; and trust in
487 Cadets, Officers, and friends outside Air Force. All correlations among fusion with cadets, squadron and
488 Air Force, as well as trust in Cadets and officers were significant (from 0,19, $P < 0.05$ to 0.71, $P < 0.001$);
489 fusion with, and trust in, other friends was positively associated, $r(118) = 0.40$, $P < 0.001$ (Table S6).

490
491 After examining the cross-sectional and causal relations among fusion, formidability, trust, and will to
492 fight, we propose a linear model showing how fusion is positively associated with will to fight, first
493 through spiritual formidability, and second through trust. For all subsequent studies, we anticipated that:
494 (1) results would replicate findings concerning the positive association between variables; (2) the
495 mediation pattern Fusion \rightarrow Spiritual Formidability \rightarrow Trust \rightarrow Will to Fight would be the strongest
496 linear path; and (3) this linear mediation would apply to different targets, including the ingroup (Studies
497 15-19, 28-30), an ally (Studies 20-27, 31), an individual leader (Studies 21-26), and core cultural values
498 such as freedom and democracy (Studies 27, 29-31). Finally, we tested the mediation in relation to an
499 actual behavior (Study 31).

500

501 **Studies 15–19. Fusion predicts will to fight through spiritual formidability and trust.**

502

503 After separately examining the relations between candidate variables in the linear model, we conducted
504 studies in different countries and socio-political contexts, using distinct methods. This package of studies
505 represents a preliminary test of the full linear model. We conducted online studies in four countries:
506 Palestine (Study 15, $n = 360$), Lebanon (Study 16, $n = 377$), Turkey (Study 17, $n = 371$) and the United
507 Kingdom (Study 18, $n = 499$). An additional field study in Palestine was designed to ground-truth the
508 online studies (Study 19, $n = 470$). We measured fusion, formidability, trust, and will to fight. The target
509 for these measures was one's own country (except Study 17 whose target was the Turkish Military). In
510 addition, the questionnaires included physical and spiritual formidability of one outgroup (i.e., Israel for
511 studies in Palestine and Lebanon; Russia for studies in Turkey and the UK). Table S7 includes means,
512 SDs, and correlations, confirming the relation between variables for all targets.

513

514 To examine the linear model we performed a series of bootstrapped (n boots = 5,000) mediation analysis
515 with PROCESS (Model 80) for each study (53). Figure 1 shows that the indirect effect of fusion on the
516 will to fight, first through spiritual formidability of the ingroup, and second via trust in the ingroup, is
517 significant for all studies. As anticipated, the indirect effect of the linear model through spiritual
518 formidability of the ingroup was strongest (Tables S8-S12).

519

520 **Studies 20–27. Replicating the linear model for an ally of Ukraine during the Ukraine-Russia War.**

521

522 After cross-culturally replicating the linear model, we examined whether it applied to will to fight for an
523 ally at war. We conducted seven rolling online studies in Spain, which was a strong, early supporter of
524 Ukraine's resistance to Russia's invasion (55). An initial study was conducted during the conflict's first
525 week (Study 20, $n = 240$) followed by six studies, one per week, corresponding to: Russia's threat to use
526 nuclear weapons (Study 21, $n = 249$), the early flight of women and children from Ukraine (Study 22, $n =$
527 280), threats to extend the conflict to NATO countries (Study 23, $n = 233$), the beginning of the conflict's
528 second month and growing belief war would last for some time (Study 24, $n = 203$), when Ukraine began
529 receiving substantial weaponry from the US and EU and Russia was approaching China for diplomatic
530 and economic support (Study 25, $n = 200$), and when international media reported hundreds of Ukrainian
531 civilians allegedly tortured and killed in Bucha and other towns as Russian troops abandoned the attempt

532 to take Ukraine's capital, Kyiv (Study 26, n = 505). We also collected data on a core value associated
533 with the conflict by Ukrainian and Western leaders and publics, namely, democracy (Study 27, n = 1910).

534
535 The target of fusion, formidability, trust, and costly sacrifices was Ukraine. Participants also responded to
536 the physical and spiritual formidability of Russia. Studies 21-26 asked participants to judge the physical
537 and spiritual formidability of Ukraine's President Zelenskyy and Russia's President Putin, and their trust
538 in President Zelenskyy. Study 27 replaced the target of all variables and asked for fusion, physical and
539 spiritual formidability, and sacrifices for democracy (Tables S13-S14 include means, SDs, correlations,
540 confirming the positive association between variables).

541
542 To examine whether fusion with an ally is associated with costly sacrifices through the physical and
543 spiritual formidability of Ukraine and Russia, and trust in Ukraine, we performed a series of bootstrapped
544 (n boots = 5,000) mediation analysis with PROCESS (Model 80) for each study (53). The indirect effect
545 of fusion on sacrifices, first through spiritual formidability of Ukraine and second through trust, is
546 significant for all the studies and stronger than the other paths (Fig. S7; Tables S15-S21).

547
548 Alternative analyses in Studies 21-26 further tested the model by substituting perception of the physical
549 and spiritual formidability of Zelenskyy and Putin for Ukraine and Russia *per se*, and by replacing trust in
550 Ukraine with trust in President Zelenskyy. Fusion with Ukraine was positively associated with sacrifices
551 for Ukraine through spiritual formidability of, and trust in, President Zelenskyy, and this linear path had
552 the strongest indirect effect (Fig. S8; Tables S22-S27).

553
554 Study 27 focused on democracy as the target of fusion, formidability, trust, and costly sacrifices. The
555 indirect effect of the full model through spiritual formidability and trust was significant, IE = 0.25, CI
556 0.194, 0.308, and stronger than other linear paths, IE = 0.11, CI 0.082, 0.151 (Fig. S9).

557 558 **Studies 28–30. Pathways to the Will to Fight in Ukraine**

559
560 We also tested the model among participants directly living the armed conflict, considering the country
561 and values they purportedly fight for. We conducted three online studies in Ukraine: shortly before armed
562 conflict with Russia began (Study 28, n = 479), during the initial Russian offensive (Study 29, n = 574),
563 and eight months later during a large-scale Ukrainian counteroffensive (Study 30, n = 426). The target of
564 fusion, formidability, trust, and costly sacrifices was Ukraine (Tables S28 include means, SDs,
565 correlations). Results replicated previous findings regarding the relation between variables and the linear
566 model in all three studies when considering the group as target (Tables S29-S31, Fig. S10).

567
568 Once war broke out, President Zelenskyy and Western leaders declared that two core values were at stake,
569 democracy and freedom (56). In Study 29 participants also responded to measures of fusion with, and
570 costly sacrifices for, democracy and freedom, and in Study 30 for democracy. In Study 29, the correlation
571 between fusion with democracy and freedom was strong, $r(572) = .54, P < 0.001$, but we decided to
572 consider these values separately by focusing on democracy in Study 30.

573
574 We examined whether fusion with democracy is associated with will to fight for democracy (Studies 29-
575 30), and fusion with freedom is associated with will to fight for freedom (Studies 29), through the
576 physical and spiritual formidability of Ukraine and Russia and trust in Ukraine. For this, we performed a
577 series of bootstrapped (n boots = 5,000) mediation analysis with PROCESS (Model 80) (53). Figure 2
578 shows that fusion with democracy is positively associated with will to fight for democracy, and fusion
579 with freedom is positively associated with will to fight for freedom, through the spiritual formidability of
580 Ukraine and trust in Ukraine (Tables S32-S34).

581 582 **Study 31. Transcultural pathways to the will to fight predict costly behaviors.**

583
584 Here we tested whether the model can predict behavior ($n = 717$). Participants in Spain responded to the
585 same measures as in Studies 20–26; however, we substituted the measure of will to fight by asking if,
586 since the war’s beginning, they had acted to help Ukraine or its people. We added measures of fusion with
587 President Zelenskyy and with freedom. We registered the percentage of participants who affirmatively
588 responded to: donate money (24.3%), welcome a refugee (2.2%), send food (26.5%), collaborate with an
589 NGO (25.4%), or any other costly behavior (10.9%). We created a variable for those committed to a
590 behavior versus those who weren’t. Of the full sample, 48% reported behavior.

591
592 Results replicate the positive association between the variables and indicate that behaviors for the sake of
593 an ally were positively associated with fusion with the country, the leader, and a core value (freedom). To
594 examine whether fusion is associated with behavior through the physical and spiritual formidability of
595 Ukraine and Russia, and trust in Ukraine, we performed a series of three bootstrapped (n boots = 5,000)
596 mediation analysis with PROCESS (Model 80) (53), including as predictors: fusion with Ukraine, fusion
597 with President Zelenskyy, or fusion with freedom. In the three models, the indirect effect through the
598 linear path of spiritual formidability of Ukraine was significant and stronger than the other three linear
599 paths (Tables S35-S38 and Fig. S11 include means, SDs, correlations, and mediation analysis).

600 601 **DISCUSSION**

602 Although in spring and summer 2022, members of Congress urged that attention and resources be
603 committed to understanding will to fight, nothing has come of it and efforts within the political and
604 military establishment remain contentious, fragmented and meager. As Senator Tom Cotton (R-AR)
605 declared: “Will to fight is not a discrete area of intelligence you can go out and collect on it” (57). This
606 may well remain so without awareness of what social, psychological and biological research might reveal
607 about will to fight. To help fill the gap, we conducted 31 studies with thousands of participants from
608 dozens of nationalities in 9 countries. These involved different data-collection methods, including field
609 and online studies with populations involved in armed conflict, such as war refugees, imprisoned
610 jihadists, violent gangs, U.S. military, and Ukrainian citizens, as well as samples from Palestine, Iraq,
611 Turkey, Lebanon, UK, and a Western European ally of Ukraine. Following initial studies to establish the
612 relevant variables (fusion, formidability, trust), results replicated 17 times in 7 countries to provide robust
613 evidence for a mediation model of transcultural pathways to the will to fight. The model reveals fusion to
614 be positively associated with will to fight, first through spiritual formidability and second via trust. The
615 model applies to fusion with, and sacrifice for, primary reference groups and core values, while also
616 implicating spiritual formidability of, and trust in, individual leaders.

617 The psycho-social pathways expressed in this transcultural linear model arguably involve cognitive
618 capacities for cooperation that evolved to allow humans to compete even in physically asymmetric
619 conflicts. Consider each of the model’s components from an evolutionary perspective, recognizing this to
620 be somewhat speculative and that each component may involve multiple evolutionary strands.

621
622 *Identity Fusion.* The potency and pervasiveness of identity fusion suggests an evolved function for
623 extreme prosociality. Fusion with family is primary for people in most settings and kin selection may help
624 to explain empirical evidence that self-sacrifice for family is more likely than for other groups (58);
625 whereas communities of “imagined kinship” (e.g., brotherhood, Motherland, etc.) express and prime
626 fusion with larger groups (16). As historian William Manchester described his U.S. Marine Corps service
627 in World War II: “Those men on the line were my family, my home” (59). As with fusion with groups,
628 fusion with individual leaders carries a visceral attachment and readiness to sacrifice for the group or
629 value that the leader represents (60). Evolutionary modeling suggests that: “Leadership charisma and
630 consistency, significant group costs, and the presence of enemies are the factors that most prominently
631 influence group survival and success” (61). Adaptive reciprocity (mutualism) also has been invoked as an

632 evolved aspect of identity fusion (62). If I will sacrifice for you and you for me, then we both may be less
633 likely to die. For sociologist Charles Moskos who fought in Vietnam: “In ground warfare an individual’s
634 survival is directly related to the support—moral, physical, and technical—he can expect from his fellow
635 soldiers... largely to the degree that he reciprocates” (63).

636
637 *Core Values.* From a strictly material vantage, people should prioritize kin or kin-like groups over
638 abstract ideals and causes. Yet our previous findings with frontline combatants (11, 12) and imprisoned
639 jihadists (30) indicate that commitment to a value can trump group as a motivation for self-sacrifice.
640 Although core values of democracy and freedom that founded the moral framework of liberal societies
641 had been receding for European and U.S. citizens (45), our studies intimate that war in Ukraine may have
642 again brought them into Western “collective conscience.” Core values tend to carry an indefinitely long
643 shadow into the future, often rooted in a somewhat mythic past, which tends to minimize clear and
644 immediate risks of advancing or defending them for a promise (and evolutionarily advantageous
645 possibility) of greater long-term survival or gain (64). As Darwin (21) and Durkheim (20) suggested,
646 values that define society’s moral framework, incarnated in heroes and martyrs, transcend evident
647 mutualism. Although identity fusion and sacred values are somewhat independent predictors of will to
648 fight, field studies indicate their interaction can maximize willingness for costly sacrifices (51).

649
650 *Spiritual Formidability.* The evolutionary history of biological conflict between organisms, including
651 humans, would likely privilege representations of physical assets. Yet physical strength and size as
652 measures of relative formidability need not only reflect material factors (29). Indeed, research indicates
653 that physical strength and size are deployed by a panhuman representational system to summarize
654 material as well as nonmaterial factors (65). We find that spiritual formidability, even when represented
655 in almost metaphorical terms of physical size and musculature, play a greater role motivating sacrifice
656 than physical formidability (31). Again, such spirit appears to provide initially low-power groups the
657 ability to survive and thrive, as Saint Augustine noted long ago in explaining why Christianity’s
658 “Commonwealth of Spirit” survived while mighty Rome collapsed (66).

659
660 *Trust.* Research in several disciplines focuses on building trust to enhance cooperation (67). Ultimately,
661 however, trust is not cooperation, but rather willingness to allow oneself to be vulnerable to the actions of
662 others. Empathy and perspective taking toward ingroup members enhances, and is enhanced by, trust
663 (68). Especially in impersonal settings among Western populations, as in business management or
664 political negotiation, integrity (honesty) and competence (ability) are robust predictors of reputation-
665 based trust (69); however in fused settings, as in family and friendship circles, benevolence as a costly
666 signal that others will provide future aid when needed can be more important for maintaining trust in the
667 long run, even when honesty and ability flag in the immediate. Indeed, for most known societies across
668 history, nepotism and cronyism – considered untrustworthy and corrupt in Western society – are reliable
669 constituents and consequences of trust in relatives, comrades, or close group members (70). An
670 evolutionary rationale for faith in kith and kin (and in the “imagined kinship” of larger fused groups) is
671 that it breeds loyalty transcending a transactional basis for a more visceral bond that endures in uncertain,
672 risky, or dangerous conditions – a transcendence common to the other components and the whole model.

673 At the outset of WWII in 1939, the U.S. army, some 174,000 strong (71), was 19th in world ranking of
674 armed forces. With U.S. entry into war, President Roosevelt committed the nation to unconditional
675 victory through the generation and application of overwhelming force, reprising in part actions taken by
676 President Lincoln to win the Civil War. By war’s end, U.S. military forces increased 50-fold and America
677 accounted for half the world’s wartime industrial production (72). This primary focus on military capacity
678 resulted in destruction of Axis military infrastructure and the political regimes dependent on it, enabling
679 transformation of authoritarian enemies into democratic friends, and arguably eventual victory in the Cold
680 War. But with America’s involvement in regional wars – in Vietnam, Iraq, Afghanistan – this dedicated

681 focus on military capacity and overwhelming force (73) to exclusion of “will to” fight has been severe in
682 treasure and lives lost and failure of desired outcomes; and this also was nearly so in the case of Ukraine.

683 This failing does not simply owe to poor intelligence and imperfect information, but rather to little or no
684 systematic gathering of intelligence or information on will to fight. For example, in a U.S. Senate Armed
685 Services Committee hearing, Gen. Berrier claimed: “the intelligence community did a great job.” U.S.
686 Senator Angus King, interrupted: “General, how can you possibly say that when were told explicitly that
687 Kyiv would fall in three days and Ukraine would fall in two weeks?” (74). In fact, systematic gathering of
688 information and intelligence assessment of initial Russian versus Ukrainian military capacity proved
689 accurate, whereas there was no such assessment evident for will to fight. Similarly in Iraq, Afghanistan,
690 and Vietnam, although there were some failures assessing military capacity over the course of conflict, a
691 deciding factor in the final outcome was failure to appreciate commitment to what Taliban (75), ISIS (76),
692 and Viet Cong (77) were fighting for (78).

693
694 We have focused on the transcultural pathways of Fusion [group, leader, value] → Spiritual Formidability
695 → Trust → Will to Fight on the basis of theoretical arguments supported by extensive empirical research.
696 However, inattention to other relevant influences on fighting spirit need to be acknowledged: for example,
697 boundary-crossing social ties and grievances that can undercut one side when outside support wanes (79),
698 which can lead to cascading collapse; and differences in social formations and political cultures (80),
699 which drive how people construct themselves and cast their adversaries (81). Also most critically lacking
700 is systematic assessment of the increasingly determinant role of social media in rapidly mobilizing, and
701 reducing mobilization costs of, such factors of the will to fight, including components of our model.

702
703 Wars are fought in the material world but not necessarily won or lost through material commitment alone.
704 Still, security strategy and policy remain telescoped on military capacity and instrumental deterrence
705 through “cost imposition”: “In confronting the range of security challenges it will face in the 21st century,
706 the United States must constantly strive to minimize its own costs in terms of lives and treasure, while
707 imposing unsustainable costs on its adversaries” (82). Even now, nearly all planning remains concentrated
708 on cost imposition despite intermittent appeal to “hearts and minds” (83) and “soft power” (84). This optic
709 tends to disregard what Darwin, in *The Descent of Man*, deemed the conviction of moral virtues “highly
710 esteemed, or even held sacred” that “give an immense advantage” to one group over another when
711 possessed by devoted actors who “by their example excite... in a high degree the spirit” in others to
712 sacrifice for comrades and cause, for ill or good (21). There plausibly is an evolutionary logic to readiness
713 to sacrifice when there is a great threat to the group and odds for survival appear slim; for then, only if
714 sufficiently many group members are willing to self-sacrifice — and in the extreme with their “last full
715 measure of devotion” — can the group resist and ultimately prevail against enemies more powerful but
716 less willing to sacrifice. The studies reported here reveal specific psycho-social pathways, within a
717 general causal framework, that may lead to such advantage across cultures.

718 719 **MATERIALS AND METHODS**

720
721 Data from nearly 12,000 respondents in 9 different countries were used for analysis. After receiving the
722 Institutional Review Board (IRB) approvals identified in Table S39, participants from each country were
723 recruited and contacted in their native language through face-to-face interviews (field studies) or online
724 social media. Data were collected via the Artis Magi Wise Platform or Qualtrics. Consents from every
725 participant were obtained verbally using an IRB-approved script or signed via an informed consent
726 document. Transcripts and response sheets were anonymized. Information about the characteristics of the
727 sample of each study are reported in *SI Appendix*. The main measures used (save trust) have been
728 validated in previous publications (*SI Appendix* for details):

729 *Identity Fusion* merges individual with collective identity to predict extreme prosocial behavior and self-
730 sacrifice (54). *Fusion with values served as proxy for Sacred Values*. We employed the three fusion
731 measures available: 1. the original pictorial measure (85), where respondents choose one of a set of five
732 paired circles, each pair includes a small circle representing “Self and a big circle representing “Group,”
733 with pairs ranging from fully separated circles, through progressive stages of overlap, to a fully fused pair
734 with the small circle entirely contained in the big circle; 2. the Dynamic Identity Fusion Index (DIFI)
735 (86), showing a figure formed by two different sized circles separated on a screen representing “Self” (or
736 “Me”), and “Group” or “Value.” Respondents placed a finger on the small circle and move it towards the
737 big circle. Overlap between circles is from 0 (not fused at all = circles remain separate) to 100 (fully fused
738 = small circle entirely within big circle); 3. the verbal measure of fusion (41), using a 7-item scale.

739
740 *Formidability* combines physical aspects of size and muscularity of a male body in a single dynamic scale
741 that represents the minds-eye image of the ingroup, an allied outgroup, a leader, or a value ranging from
742 large and strong to small and weak. This scale not only reflects a person’s or group’s material assets but,
743 under distinct verbal framings, can represent nonmaterial aspects of formidability (29). We used the same
744 visual measures for physical and spiritual formidability, distinguishing them only by different verbal
745 frames. We operationalized spiritual formidability as conviction and immaterial resources (values,
746 strength of beliefs, character) of a person, leader, group, or value to endure in conflict (12, 31), and
747 physical formidability as material capacity to inflict damage on an adversary.

748
749 *Trust*. Trust was not a prior concept of our research design, but a subsequent codification of spontaneous
750 and recurring expressions initiated by our combatant and prison populations. Trust in the group, leader, or
751 value, was measured using between 1 to 4 items depending on the study and adapted to the context.

752 *Will to Fight* was measured using different scales of costly sacrifices or the will to fight for a group,
753 leader, or value, including between 2 and 7 items, and adapted to the nature of each study.

754 **Data Availability.** Anonymized human subjects data are deposited in the Open Science Framework;
755 https://osf.io/zdqbm/?view_only=1a74611bd9f84926a928a050335abfef

756
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764

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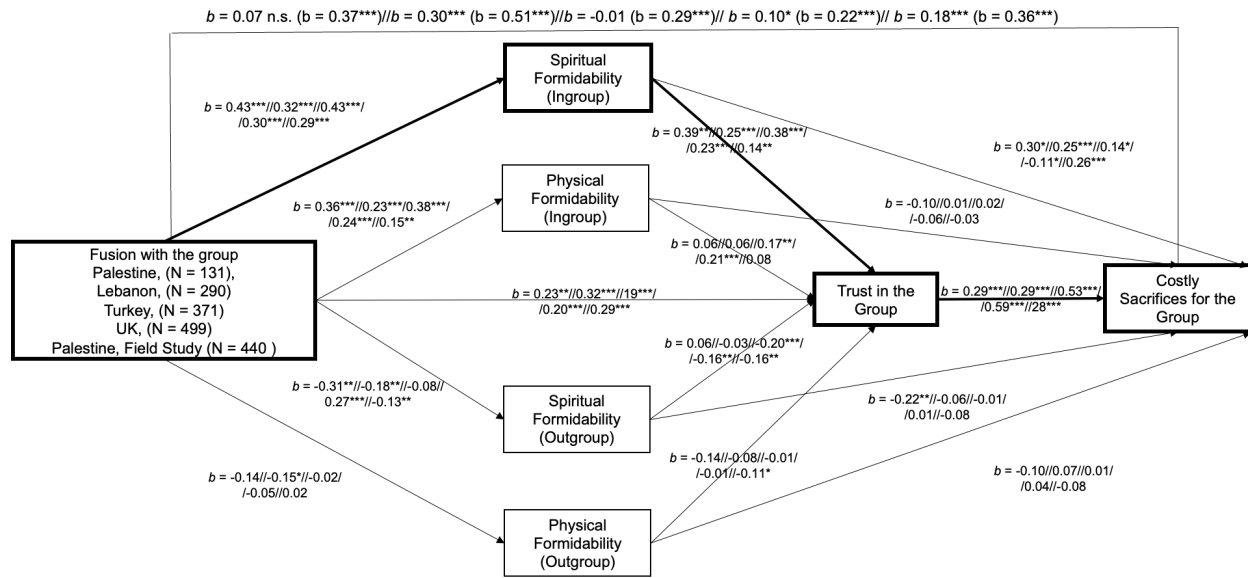


Figure 1. Fusion with the group is positively associated with costly sacrifices through perceived spiritual formidability and trust (Studies 15–19).

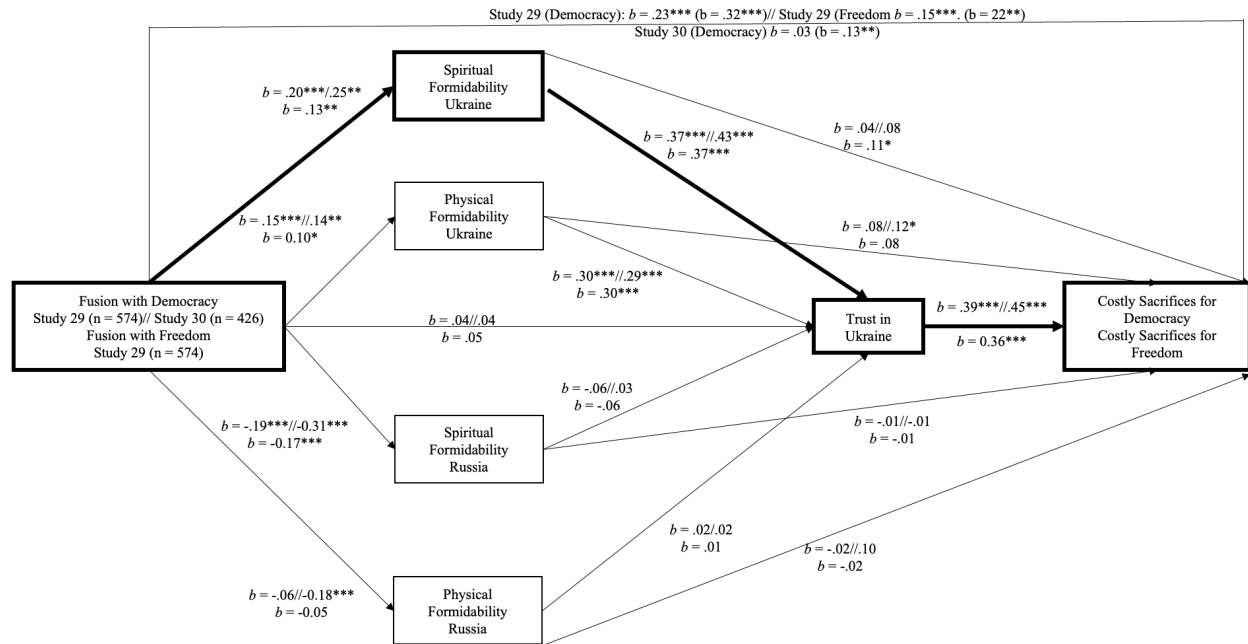


Figure 2. Fusion with the values of Democracy and Freedom is associated with costly sacrifices for Democracy (Study 29) and Freedom (Studies 29-30) in Ukraine.

Table 1. Summary of Studies, characteristics of the samples, sample sizes, and main findings

Study Number	Characteristics of Sample and Ns (between brackets)	Main Findings
Studies 1-2 (Spain)	Jihadists vs. Latino Gangs in Prisons (122, 152)	Fusion is positively associated with will to fight more strongly through spiritual than physical formidability
Study 3 (Spain)	Syrian Refugees in Spain (37)	Spiritual formidability of and will to fight for, Syrian refugees are positively associated
Study 4 (Spain)	Online, experiment. General Population (476)	Spiritual formidability of the country predicts will to fight for the country
Study 5 (Spain)	Online, Cross-sectional. General Population (583)	Examine the meaning features of trust for participants: predictability, support, delegation of responsibility, self-verification and trustworthiness or being trustworthy
Study 6 (Iraq)	Internally Displaced persons in Iraq (78)	Trust in the Iraqi Army is positively associated with will to fight for a Unified Iraq
Study 7 (Iraq)	Young people in Mosul after the defeat of ISIS (72)	Trust in the Iraqi Army is positively associated with will to fight for the Sunni Arab Community
Study 8 (Morocco)	Neighborhoods linked to terrorist campaigns (401)	Trust in Moroccans is positively associated with will to fight for Moroccans
Study 9 (Spain)	Online, Cross-sectional. General Population (432)	Trust in the country is positively associated with will to fight for the country
Study 10 (Spain)	Online experiment (611)	Trust in the country predicts will to fight for country
Study 11 (Morocco)	Neighborhoods linked to terrorist campaigns (476)	Spiritual formidability of the country is positively associated with will to fight for the country through trust in the country
Study 12 (Palestine)	Gaza and the West Bank (730)	
Study 13 (Spain)	Online, Cross-sectional. General Population (350)	
Study 14 (USA)	Cadets from the U.S. Air Force Academy (120)	Fusion is positively associated only to trust in the target of fusion but not to other targets.
Studies 15-19 (Palestine, Lebanon, Turkey, UK, Palestine)	Studies 15-18, cross sectional, General Population (360, 377, 371, 499). Study 19, ethnographic fieldwork (470)	Fusion is positively associated with twill to fight via spiritual formidability first, and trust second.
Studies 20-26 (Spain)	Online, Cross-sectional. General Population (240, 249, 280, 233, 203, 200, 505)	Fusion is positively associated with will to fight via spiritual formidability first, and trust second.
Study 27 (Spain)	Online, Cross-sectional. General Population (1910)	Fusion is positively associated with will to fight via spiritual formidability first, and trust second.
Studies 28-30 (Ukraine)	Online, Cross-sectional. General population. Before the conflict with Russia, during the initial offensive and 8 months after the beginning of the conflict (479, 574, 426).	Fusion is positively associated with the will to fight via spiritual formidability first, and trust second. The linear model is replicated for country, democracy, and freedom.
Study 31 (Spain)	Online, Cross-sectional. General Population (717)	The linear model fusion-spiritual formidability-trust predicts behavior (donate money, welcome a refugee, send food, collaborate with and NGO)