

# Chapter 12

## Wars, Revolutions and Coups, and the Absence of Peace Across the World

### 12.1 Introduction

This chapter addresses the application of the parasite-stress theory of values to cross-national incidences of within-country warfare and other types of political intergroup conflict within countries across the world. All the various types of such wars are investigated. We also treat the related topics of revolutions and coups. The methods and results used in some of the research on cross-national intergroup conflict described below are given in fuller detail in our two publications with Kenneth Letendre on intergroup conflict (Letendre et al. 2010, 2012); previously unpublished analyses are identified as such and described when they are introduced in this chapter. We also discuss a study that applied the parasite-stress theory of values to explain the regional diversity of college and university team sports across the states of the USA. First, we briefly discuss components of the parasite-stress theory of sociality relevant to intergroup conflict.

### 12.2 Relevant Aspects of the Parasite-Stress Theory

According to the parasite-stress theory of values, which was explained in detail in Chap. 3, temporally and spatially variable parasite stresses generated past selection that built species-typical, conditional psychological adaptations of humans that are functionally specialized for assessment of local parasite stress and for guiding the adoption and use of values (morals) pertaining to in-group and out-group behaviors that manage and avoid infectious diseases. Hence, parasite stresses generated the natural selection of individuals that caused the evolution of this conditional psychology in the first place (ultimate causation); and such stresses are the ancestral cues that cause that psychology's cognitive, emotional and behavioral manifestations within the lifetime of the individual (proximate causation).

Host–parasite antagonistic coevolutionary races are variable and localized spatially across the range of a single human culture, yielding local coadaptation between hosts and their local parasites. This creates a situation in which contact and interaction with non-group members (out-groups) can be costly, because out-group members, relative to in-group members, may carry parasites to which in-group members are not adapted immunologically. This can involve different variants of single parasite species.

Therefore, people's core morality and associated social life arise to an important extent from assessments of contagion risk during ontogeny. Xenophobia—the avoidance of and antagonism toward out-groups—is an adaptation or evolved solution to the problem of being maladapted to the infectious diseases parasitizing out-groups. Ethnocentrism is a complementary, evolved solution to the fitness challenge imposed by parasite adversity: loyalty toward, dutiful assistance of, and interdependence with in-group members are defenses and insurance against the mortality and morbidity of local parasites that infect the in-group. Ethnocentrism is comprised of two parts: (a) nuclear- and extended-family nepotism, and (b) cooperation with in-group, non-family members with the same values and immunity. The greater the parasite stress in a region, the greater the ethnocentrism and xenophobia; likewise, the lower the pathogen prevalence, the lower the ethnocentrism and xenophobia. Low ethnocentrism is the value of prioritizing nuclear-family-focused nepotism and with limited extended-family interactions and in-group allegiance. Low xenophobia (=high xenophilia) is the value of attractiveness of out-group interactions and relations. Out-group interactions provide benefits to individuals of broader and more diverse social networks and intergroup alliances, but such benefits are expected to exceed costs when parasite stresses are reduced. Consequently, the parasite-stress theory of values proposes that parasites causally influence human values/morals pertaining to family life and to in-group and out-group feelings, motivations and behavior in general.

Moreover, the parasite-stress theory asserts that high infectious-disease intensity in a region leads to individuals with collectivist values/behaviors and, thus, emergent collectivist cultures, and that low levels of infectious diseases lead to individuals with individualistic values/behaviors and emergent individualistic cultures. The cross-regional relationship between a region's location on the collectivism–individualism values dimension and parasite adversity in the region provides strong support for this aspect of the theory: across the states of the USA and many countries of the world, high parasite stress corresponds to high collectivism, whereas low parasite stress corresponds to low collectivism, i.e., high individualism (Chap. 5). Collectivism (as opposed to individualism) is a value system of out-group devaluation; in-group support; conformity to in-group norms; closed-mindedness to new ideas and ways; and allegiance to traditional values, hierarchy and authority. The collectivist understands self as immersed in and interdependent upon in-group members, and places an emphasis on distinguishing in-group from out-group members. In contrast, the ideology of individualism recognizes the validity, safety and security of interactions with out-groups who have different norms and beliefs, and prioritizes openness to novelty, thus placing less importance on tradition,

authority, and hierarchy. The individualist understands self as relatively independent of the in-group, and in-group and out-group boundaries are blurred and frequently change (Chap. 4).

Furthermore, pathogen stress and collectivism negatively relate to democratization across the countries of the world: high parasite stress and associated high collectivism correspond to low levels of democratization, i.e., to high autocracy. The interrelationship among collectivism, parasite stress, and democracy across countries is supportive of the parasite-stress theory of the causes of morality. Compared to individualistic countries, collectivist ones exhibit greater and more widespread poverty, inequality, morbidity, and mortality as a result of the reduced investment by the governing elites in public welfare, health, infrastructure, education, and other public goods and services. This reduced investment by elites stems from the collectivist ideology of devaluing out-group members, valuing in-group members, and a general acceptance of human inequality (Chaps. 10 and 11).

We apply these basic components of the parasite-stress theory of values to each of the various types of intra-nation warfare and conflict as we take them up for analysis below.

## 12.3 Civil War

### 12.3.1 *Letendre et al. (2010)*

Civil wars are a type of intra-nation war waged between a government of a country and an armed, organized group(s) within the same country that seeks control of the government or a region, or seeks to change governmental policies in ways that best suit the non-government group's ideological preferences (e.g., Fearon and Laitin 2003). In our cross-national study of civil wars, conducted in collaboration with Kenneth Letendre (2010), it was hypothesized that the combination of increased (1) resource competition (due to widespread economic dearth and inequality), (2) ethnocentrism and (3) xenophobia, characteristics of collectivist societies, cause an increased frequency of civil war. Individualistic nations, in contrast, experiencing less severe resource competition (more equitable resource and political power distribution and higher gross domestic product (GDP) per capita), less ethnocentrism and less xenophobia (more xenophilia), are less prone to civil war. In individualistic countries, within-nation, escalated intergroup conflicts involving a national government versus an armed out-group are less likely to arise, and, when they do, are more likely to be reconciled diplomatically without war. In contrast, in collectivist countries, such intra-country conflicts are more likely to arise and escalate to civil war. This view is consistent with Hofstede's characterization of a "high risk of domestic intergroup conflict" in collectivist societies as a key difference from individualist societies (Hofstede 2001, p. 251).

Furthermore, the ideology of collectivism promotes within-nation regional factionalism and resultant fractionation based on strong and localized preferences for certain values coupled with xenophobic attitudes toward non-local values. This is seen empirically in encompassing form in the strong positive relation between parasite stress and the number of religions and languages across countries of the world (Fincher and Thornhill 2008a, b; treated in detail in Chap. 13). High parasite stress and the collectivist values it evokes lead to ideological and linguistic boundaries within single regions that can cause new cultures to arise.

To test this perspective on civil war, Letendre et al. (2010) employed two data sets on civil-war outbreaks across countries: Fearon and Laitin's (2003) data on outbreaks in 157 countries in the years 1945–1999, and Strand's (2006) data on outbreaks in 177 countries in the years 1946–2004. Strand's (2006) data include small civil wars resulting in at least 25 battle deaths in 1 year, as well as large civil wars. Fearon and Laitin (2003) data, based on the Correlates of War Intra-state War data set (Singer and Small 1994), tallied major civil wars—those killing at least 1,000, with a minimum yearly average of 100 dead, and at least 100 killed on both sides. Hence, data were analyzed for civil wars across a range of magnitude in terms of mortality. Letendre et al. (2010) used *Contemporary Parasite Severity* (see Chap. 5 for description) as a measure of cross-national parasite adversity.

The parasite-stress theory of values applied to civil war was supported (Letendre et al. 2010). The statistical analyses and associated empirical results indicated that parasite severity positively predicted the frequency of civil-war outbreaks across the globe; this was found in separate analyses for small civil wars with relatively low mortality, as well in large civil wars with high mortality. The effect sizes were moderate to strong. Several potential confounds suggested in publications of earlier researchers to cause civil war were included in analyses, but the positive relationship between parasite stress and civil war outbreaks remained robust when potential confounds were considered. The potential confounds examined were national GDP per capita, economic growth, population size, democratization, and political instability.

Hendrix and Gleditsch (2012) criticized the conclusion by Letendre et al. (2010) that support was found for the hypothesis that high parasite stress causes civil war onsets. These critics pointed out that the measure of parasite stress used was based on contemporary infectious diseases (in 2007), but the civil war onsets were earlier (from 1945 to 2004). Hence, they claimed that Letendre et al. (2010) could not conclude that the parasite stress occurring before the wars thereby caused the wars. Our reply to this criticism is of three parts. First, it was pointed out in Letendre et al. (2010) that the measure of *Contemporary Parasite Severity* used correlated strongly with historical parasite stress, and that climate in a region maintains through time the basic ecological requirements for a region's parasite abundance. Second, Hendrix and Gleditsch's criticism, however, motivated us to look again at the civil war onset patterns, this time in relation to *Historical Parasite Severity* (a variable described in Chap. 5). The result is basically the same as with *Contemporary Parasite Severity*: a moderate and statistically significant positive effect is found with the historical measure,  $r=0.30$ ,  $p=0.006$ ,  $n=85$  countries. Third, we present

below results analyzing *Historical Parasite Severity* in relation to within-country wars other than civil war, and find that the frequencies of onsets of these wars are significantly predictable from *Historical Parasite Severity*.

Hendrix and Gleditsch (2012) also argue that civil war causes infectious disease problems, but not vice versa. We agree that civil war causes increased parasite adversity. This is part of the parasite-stress hypothesis of civil war, as discussed later in this chapter (also in Letendre et al. 2010, 2012). We, of course, reason as well that civil war is caused by parasite stress. Causation is bidirectional in the parasite-stress theory of values applied to civil war.

Hendrix and Gleditsch, too, propose that civil war is caused by “poor government and public goods provision by the state ...” (p. 166). Certainly, the parasite-stress theory of values predicts a strong correspondence between inept government, low governmental interest in public goods, and civil war onsets. This correspondence, according to the parasite-stress theory, is from the encompassing causes of high parasite stress and the collectivist values it evokes. Hendrix and Gleditsch ignore the role of human values or preferences altogether, and hence do not see the necessity of a validated theory of values in explaining human conflict. They ignore, too, the fact that the actors in intergroup conflict are evolved animals with psychological adaptations that cause all their decisions, including the decisions that determine these conflicts. As we have emphasized throughout our book, this fact is the most fundamental intellectual starting point for serious thought about the causes of people’s behavior.

Letendre et al. (2010) reviewed prior literature advocating hypotheses of civil war based on environmental variables and the distribution and competition for resources. That review shows that the parasite-stress theory of sociality, as applied to civil wars, integrates many diverse findings and hypotheses reported in the traditional political-science literature on the incidence of civil war. These issues are treated near the end of this chapter.

### 12.3.2 *Collectivism*

Here we report analyses of collectivism–individualism, a variable not included in analyses in Letendre et al. (2010), as that paper looked only at the relationship between parasite adversity and civil war onsets. The parasite-stress theory of values predicts that civil-war frequencies across nations will not only be related positively to parasite stress, but also will show the same relationship to collectivism. This is the case. Fearon and Laitin’s (2003) data show the following relationships with collectivism–individualism: with *Gelfand In-group Collectivism*,  $r=0.46$ ,  $p=0.0004$ ,  $n=56$ ; with *Suh Individualism*,  $r=-0.46$ ,  $p=0.0004$ ,  $n=55$ . The relationship of civil war events with *Hostede Individualism* is similar, but shows a smaller effect ( $r=-0.33$ ,  $p<0.01$ ,  $n=70$ ). All effect sizes are moderate in magnitude. (These measures of collectivism–individualism are described in Chap. 5.)

In sum, as predicted by the parasite-stress theory of values, civil wars are more frequent in countries with high parasite stress and collectivist values than in countries with low parasite stress and individualist values.

## 12.4 Other Intra-Nation Intergroup Conflicts

Civil war is not the only type of domestic/intra-nation intergroup conflict. There are additional types of these conflicts that the parasite-stress theory of values is expected to illuminate. Next, we explore extensions of the parasite-stress theory of values to frequencies of (1) non-state-government wars, hereafter “non-state wars,” i.e., intergroup, within-country conflicts in which the federal government is not a combatant; (2) political coups; and (3) revolutions. As with civil war, all three of these additional intra-country conflicts derive from major differences in ideological preferences among groups within a nation. In non-state wars, organized groups, such as clans or tribes of ideological collectives, war against one another, and the national government is not a combatant. A coup (also called a coup d'état) occurs when a national government is suddenly usurped and replaced by a faction (often the military) of the same government. Revolutions, like coups, involve efforts to accomplish regime changes, but over longer periods of time and involving social transformation of the old government by a considerable segment of the society.

Letendre et al. (2012) hypothesized that these three types of intrastate conflicts arise, at least in part, from elevated out-group intolerance and devaluation, and in-group alliance and cooperation, and hence will be most frequent in nations with high parasite stress and related high collectivism. Specifically, for each of these three types of conflict, the parasite-stress theory of values predicts that parasite adversity and collectivism will correlate positively with the counts of events across countries, and that individualism will correlate negatively with the frequency of each of the three categories of conflicts. The analyses in Letendre et al. (2012) supported these ideas by showing that parasite stress was significantly related to each of the three types of intrastate conflicts when the same potential confounds mentioned above for analysis of civil wars in Letendre et al. (2010) were accounted for: GDP per capita, economic growth, population size, democratization, and political instability.

Letendre et al. (2012) also examined the application of the parasite-stress theory to a measure of peace, the Global Peace Index, across countries. The measure combines information about the presence or absence of internal and external war across many nations. The external war component of the peace measure allows the preliminary study of the parasite-stress theory's application to international warfare. From the parasite-stress theory, it is expected that, across countries, as parasite stress and collectivism decrease, peace will be more prevalent. Letendre et al. (2012) reported support for this hypothesis. That study showed in a path analysis that peace across countries increases as parasite stress declines.

In this chapter, we employ a fuller range of parasite-stress and collectivism-individualism variables in analyses of non-state wars, coups, revolutions and the

Global Peace Index than used in Letendre et al. (2012). Three measures of variation in parasite stress across countries are used here. They are positively and highly intercorrelated but assess somewhat different aspects of human infectious-disease stress. *Disease Richness* is the number of infectious diseases per country in a contemporary context. *Contemporary Parasite Severity* is the severity of a set of important human parasites in a current context. *Historical Parasite Severity* is the severity of a set of important human parasites in earlier decades back to the early 1900s. Hence, our measures of parasite stress cover the contemporary and the historical infectious-disease problems across countries (these disease variables are explained fully in Chap. 5). In Letendre et al. (2012) only *Contemporary Parasite Severity* was used to measure parasite adversity. The three collectivism measures we use in this chapter are also described in Chap. 5. Letendre et al. (2012) used *Strength of Family Ties* as the collectivism measure and only in an analysis with the Global Peace Index; this collectivism measure is also described in Chap. 5.

## 12.5 Non-State Wars

### 12.5.1 Methods

As in Letendre et al. (2012), we used data on non-state war occurrences from the Uppsala Conflict Data Program (UCDP) WWW site; UCDP Non-State Conflict Dataset V.1.1, 2002–2005 at <http://www.pcr.uu.se/research/UCDP/index.htm>. This is a cross-national (255 countries) dataset with information about armed conflict onset between two organized groups within a country, neither of which is the government of the country, resulting in at least 25 battle-related deaths in a calendar year; both military and civilian deaths are counted as battle-related deaths. Hence, these non-state wars are a different type of conflict than civil wars, as the latter always involve the government of a state versus an organized warring group(s) within that state. This dataset lists 24 countries with at least one non-state war onset over the period of 2002–2005. There were a total of 125 such conflicts, and countries varied from 0 to 28 conflicts. These wars are escalated inter-ethnic or clan wars; examples are in Uganda, the Pokot clan versus the Sabinu clan; Syria, Arabs versus Kurds; Somalia, the Jareer subclan of the Hawiye clan versus the Jiddo subclan of the Digil clan. Our variable is the sum of the non-state war onsets per country over the period 2002–2005.

We use here two kinds of analyses to investigate non-state wars. First, countries were coded for presence (1) or absence (0) of a non-state war over the 2002–2005 period. This analysis was performed because of the large percentage of countries with zeros. For each of our hypothetical causal variables, the difference between the means of countries with non-state conflict present versus absent was tested by a *t*-test. The second kind of analysis was regression between the total number of non-state wars per country over 2002–2005 by the hypothetical causal variables. To reduce skew, the number of non-state wars was log-transformed.

## 12.5.2 Findings

As predicted by the parasite-stress theory of values, each of the three parasite-stress measures was associated with non-state war presence versus absence across countries: *Disease Richness*,  $t=7.10$ ,  $df=227$ ,  $p<0.0001$ , mean, std. dev., and  $n$  for war present 220.50, 14.60 and 24, and for war absent 198.34, 13.53, 205; *Contemporary Parasite Severity*,  $t=6.75$ ,  $df=223$ ,  $p<0.0001$ , for war present 39.63, 4.74 and 24 and for war absent 30.53, 6.39, 201; *Historical Parasite Severity*,  $t=6.35$ ,  $df=91$ ,  $p<0.0001$ , for war present 0.70, 0.39, 13, and for war absent  $-0.12$ , 0.63, 80. In sum, high parasite stress corresponds to the presence of non-state wars, whereas low parasite stress corresponds to the absence of non-state wars.

Also as predicted, correlation analysis reveals significant positive covariation between each of the three measures of parasite stress and number of non-state wars across the countries. Each of the three relationships is highly significant by linear regression ( $p<0.0001$ ) ( $r$ 's, 0.42–0.43) and is improved significantly by polynomial degree-2 analysis ( $t$ -ratio probability  $\leq 0.005$ ). The polynomial analysis indicates that the number of non-state wars rises most rapidly at high parasite stress. Hence, parasite stress and number of non-state wars across countries are positively related with moderate effect sizes across the three measures of parasite stress.

As predicted also, collectivism is associated positively (individualism, negatively) with the number of non-state wars: *Gelfand In-group Collectivism*,  $r=0.24$ ,  $p=0.06$ ,  $n=62$ ; *Hofstede Individualism*,  $r=-0.27$ ,  $p=0.02$ ,  $n=70$ ; *Suh Individualism*,  $r=-0.37$ ,  $p=0.003$ ,  $n=61$ . Although the conventional level of statistical significance ( $p=0.05$ ) is not reached in the relationship with *Gelfand In-group Collectivism*, this pattern is significant ( $p=0.03$ ) with one-tailed probability, which is appropriate given the a priori prediction of the direction of the relationship. Effect sizes are small to moderate in magnitude.

## 12.6 Revolutions and Coups

### 12.6.1 Methods

As in Letendre et al. (2012), we used the Barro–Lee Dataset for a panel of 138 countries (Barro and Lee 1994). The Barro–Lee variable used was REVCoup, which they define as "... [T]he number of revolutions and coups per year, averaged over the period 1960–1984." The source for these data is Banks (1979, updated). (This variable was used also in a recent cross-national analysis of political instability by Nettle et al. 2007.) The events appear to reflect the standard definitions of revolutions and coups as used in political science and described above.



## 12.6.2 Findings

As predicted, countries with high parasite stress are more subject to civil political violence in the form of revolutions and coups than are countries with low parasite stress. The number of revolutions and coups correlated significantly and positively with each of the three parasite-stress measures: *Disease Richness*,  $r=0.23$ ,  $p=0.009$ ,  $n=131$ ; *Contemporary Parasite Severity*,  $r=0.39$ ,  $p<0.0001$ ,  $n=131$ ; *Historical Parasite Severity*,  $r=0.40$ ,  $p<0.0003$ ,  $n=77$ . With the exception of the small effect size for *Disease Richness*, the effect sizes are intermediate in magnitude.

Collectivism covaries significantly across countries with the number of revolutions and coups in the direction predicted: *Gelfand In-group Collectivism*,  $r=0.37$ ,  $p=0.008$ ,  $n=50$ ; *Hofstede Individualism*,  $r=-0.45$ ,  $p<0.0004$ ,  $n=58$ ; *Suh Individualism*,  $r=-0.48$ ,  $p=0.0007$ ,  $n=46$ . Hence, high collectivism (low individualism) corresponds to more frequent occurrences of revolutions and coups, whereas low collectivism (high individualism) corresponds to less frequent occurrences of these domestic conflicts. Effect sizes are intermediate in magnitude.

## 12.7 Peace

### 12.7.1 Methods

As in Letendre et al. (2012), we used the Global Peace Index for 2008, collated and calculated by the Economist Intelligence Unit. The Index was available for 140 countries and is comprised of 24 qualitative and quantitative indicators, which combine factors pertaining to countries' relative peace status. The Index prioritizes measures of an absence of violent conflicts with neighboring countries and of internal wars. The 24 indicators include: political instability, relations with neighboring countries, the number of external and internal conflicts fought between 2000 and 2005, the number of deaths from both external and internal conflict, military expenditures, potential for terrorist acts, and homicide rate. The Index ranges from 1 to 5, where 1 is the most peaceful and 5 the least peaceful. Iceland is the most peaceful, with a score of 1.176; Iraq is the least peaceful, with a score of 3.514. Data and descriptions of ranking methods used are at <http://www.visionofhumanity.org>.

### 12.7.2 Findings

Across the world, the relative peacefulness per country shows the patterns predicted by the parasite-stress theory of values. The lowest scores on the Global Peace Index correspond to relatively high peace, so we expected a positive relationship between

parasite-stress and the Global Peace Index. The relationships of the Global Peace Index with each of the parasite-stress variables are: *Disease Richness*,  $r=0.44$ ,  $p<0.0001$ ,  $n=140$ ; *Contemporary Parasite Severity*,  $r=0.54$ ,  $p<0.0001$ ,  $n=140$ ; *Historical Parasite Severity*,  $r=0.57$ ,  $p<0.0001$ ,  $n=89$ . Thus, the higher the parasite stress, the lower the peacefulness. These effect sizes are intermediate to strong in magnitude.

Moreover, the predicted patterns were seen with the three values' measures and the Global Peace Index: *Gelfand In-group Collectivism*,  $r=0.51$ ,  $p<0.0001$ ,  $n=56$ ; *Hofstede Individualism*,  $r=-0.43$ ,  $p<0.0003$ ,  $n=66$ ; *Suh Individualism*,  $r=-0.49$ ,  $p<0.0002$ ,  $n=54$ . Effect sizes were intermediate to strong. Thus, across nations, we found that the higher the individualism (or the lower the collectivism), the higher the peacefulness in a country.

## 12.8 Discussion and Conclusions

The overall findings are that, across the countries of the world, the parasite-stress theory of values provides an empirically fruitful theory for major types of intergroup, within-nation political conflicts. As predicted, the number of events of civil wars, non-state wars (i.e., clan, tribal, and ethnic wars), and political revolutions and coups covaried with parasite stress and collectivism (and, hence, individualism); the predicted relationships also were seen with a measure of peacefulness, the absence of internal and external conflict. Specifically, in countries with higher levels of parasite stress and collectivism, there were a larger number of civil-war onsets, non-state war onsets, and revolutions and coups. As well, in countries with higher levels of parasite stress and collectivism, peacefulness, as measured by the Global Peace Index, was lower. Our analyses of the Global Peace Index across countries allow preliminary examination of the parasite-stress theory in relation to international political conflicts because such conflicts are a component of this index. All results indicate that the parasite-stress theory is a useful way to understand major political conflicts of all types.

We now turn to a more detailed discussion of the parasite-stress theory of values as applied to intergroup political conflicts in order to further clarify this application. Then we turn to some additional considerations arising from the empirical findings reported above.

## 12.9 Parasite Stress and Civil Conflict: Further Clarifications

The parasite-stress theory of values proposes that civil political conflicts can be understood as follows. They are caused by behavioral and psychological features functionally designed for (i.e., directly selected in the context of) intragroup

embeddedness, cohesion and cooperation (i.e., in-group assortative sociality) critical in defense against coercion and aggression by out-groups and in offensive coercion and aggression against out-groups. In this regard, the psychology of collectivism is causal, because it is designed (a) for distinguishing group boundaries through collective adherence to shared in-group values and norms and, hence, for identifying out-groups, and (b) when combined with xenophobia, for producing negative feelings (dislike, disgust) toward out-groups. Collectivist emotions and behavior are designed, too, for investment in, support of, and loyalty toward in-group members comprised of extended family and other group members with the same values/morals. Collectivism is an interdependency on and a high valuation of in-group members with a simultaneous devaluation and avoidance of out-group members in conjunction with xenophobia.

Much of collectivism is appropriately cast as in-group cooperation. Therefore, collectivism is the basis of success in both defensive and offensive out-group hostility. The degree of cooperation achieved among members of a warring group—whether a raiding party of relatively egalitarian hunter-gatherers or a highly hierarchical army—is recognized widely as critical for effectiveness in warring (e.g., see Buss 2004 discussion of warfare). Coalitional aggression against out-groups is pursued almost exclusively by men (Wrangham and Peterson 1996). However, the people (including women) not participating directly in warring importantly provide moral support and associated assistance, which, like the amity among members of the warring coalition, is promoted by collectivist ideology.

There is increasing evidence of condition-dependent psychological adaptation in men that is functionally designed for war. Its information-processing capacities include an assessment of benefits from war in the form of access to women and other resources, as well as an assessment of coalitional support and strength of own versus enemy group (Duntley and Buss 2008). This adaptation may have been directly sexually selected in the context of men's competition for women and the status and related resources that can give access to multiple sexual partners (Low 1993; Wrangham and Peterson 1996; Buss 2004). In the parasite-stress theory as applied to war, the war adaptation interacts with the psychological adaptation for adopting and using human values such as xenophobia and in-group allegiance (collectivism) to result in the decision that war is the appropriate means for dealing with intergroup conflict. Hence, warfare is caused partly by war adaptation in men and partly by collectivist values.

Furthermore, the parasite-stress theory proposes that the psychology of collectivism and of war give rise to a major political conflict when the perceived benefits of intergroup conflict exceed its high costs. One benefit of the pursuit of conflict is access to resources in the event of a victory over the out-group. Another benefit is the exclusion of the out-group from the region and, in some cases, out-group extermination. Although warfare may expose warriors to the risk of contracting new diseases from the enemy during combat, warfare may reduce importantly future intergroup contact and interaction. According to the parasite-stress theory, during human evolutionary history, this future reduction of intergroup contact and interaction provides inclusive fitness benefits greater than the cost of contracting infectious

diseases during combat. Hence, in this view, the xenophobia that motivated intergroup aggression had, as its net effect, an avoidance of problems resulting from infectious diseases.

In the context of infectious disease, past selection created a condition-dependent moral psychology—the psychological adaptations that manifest in human cognitions and behavior as collectivism and associated xenophobia and ethnocentrism, or as individualism. The moral psychology is designed to incorporate values during development (ontogeny) by learning socially those values well suited to local parasite prevalence. We have discussed some possible ontogenetic ancestral cues that may guide historically adaptive construction of individuals' moral repertoires (Chap. 3). High parasite stress causes a willingness to accept the costs of intergroup conflict, whereas low parasite stress builds pacifism and other positivism toward out-groups. The parasite-stress theory, then, may explain much of the variation in the values affecting within-nation conflicts as well as international conflicts across the globe.

In the parasite-stress theory, the following are proximate causes of political conflict, as well as its antipole, pacifism/absence of such conflict: the war psychological adaptation, the moral psychological adaptation, collectivism–individualism, the psychology that assesses local parasite stress, and the ontogenetic events involved in the production of all this phenotypic machinery. Of course, the ontogeny includes the important role of social learning of values within and across generations, which gives rise to what some researchers call “cultural evolution,” referring to changes in the frequencies of ideas, values and related behavior (Richerson and Boyd 1998; also see Chap. 2). The ontogeny of the social-learning machinery, like the ontogeny of all phenotypic features, is causally dependent on genes as a partial proximate cause.

As explained earlier in the book, we use the concept of “cause” in its typical, scientific sense: that, without which, an effect will not occur. Each proximate cause listed above is necessary, but insufficient alone, to generate political conflict. Each is a partial cause; again, using the standard conception of cause in science.

By definition, proximate causes are those that act to generate an effect within the lifetime of the organism. Each piece of machinery comprising the above list of proximate causes is the product of evolutionary historical causation, i.e., ultimate causation. We have treated only the selection history of this machinery and ignored phylogenetic ultimate causation, a distinct and complementary causal framework that addresses the location on the Tree of Life where traits first appeared in the history of life (Chap. 2). According to the parasite-stress theory, the selection that built all the proximate causes (listed above) was direct selection in the context of parasite stress, or in the case of the war adaptation, direct sexual selection for condition-dependent warring behavior.

In regard to testing, the parasite-stress theory of political conflicts predicts (i.e., requires for its support) that the frequency of political conflicts across countries will show a positive correlation with parasite stress and collectivism (and a negative correlation with individualism). If these patterns are not seen, the theory is false; the findings to date reported herein and in Letendre et al. (2010) and Letendre et al. (2012) support the theory.

The civil-conflict literature is voluminous, especially with regard to civil war (partial reviews in Alesina et al. 1996; Hegre and Sambanis 2006; Nettle et al. 2007; Abadie and Gardeazabal 2008; Sosis and Alcorta 2008). This literature proposes various causes for these conflicts, as well as numerous tests of these causes. Often, the factors of population size, GDP per capita, Gini (wealth inequality), time since last conflict (in the case of civil war), inconsistent democratic institutions, political instability, war-prone and undemocratic neighboring countries, ethnic diversity, and a low rate of economic growth are considered to be basic causes of such conflicts. Also, typically in research looking at one or a few of these variables that predict conflict, some of the other variables are considered confounds and, hence, statistically controlled.

In the parasite-stress theory of values, however, all the variables just mentioned are effects of the same underlying cause—parasite stress. Even increased population size, which is correlated positively with the frequency of within-country conflicts (e.g., Hegre and Sambanis 2006), may be an effect of parasite stress in many parts of the globe, because infectious disease is correlated positively with birth rate cross-nationally (Guégan et al. 2001). This correlation, we argue, is the result, in part, of moderate parasite stress acting as an intrinsic mortality factor promoting a high reproductive rate associated with collectivist extended family nepotism and the result, in part, of extreme parasite stress as an extrinsic mortality factor promoting even higher reproduction (fast-track life history strategy) (Chap. 14.6). Separately, we have treated in detail how GDP per capita, economic growth, and democratization are predicted consequences of the parasite-stress theory: upon relative emancipation from infectious diseases, peoples' values become more individualistic or liberalized, which results in greater economic productivity and investment in public goods and services and the welfare of out-groups in general (Chaps. 10 and 11). The relationship between ethnic or cultural diversity and parasite stress is treated in Chap. 13. Furthermore, pertaining to the variable “war-prone neighbors,” we propose that frequently there is a spatial autocorrelation in domestic-conflict events among countries in a geographical region, because there are regional differences in the ecological conditions (e.g., rainfall and temperature) affecting parasite stress (Chap. 3). We propose, too, that the variable “time since last civil conflict” is an important effect of the parasite-stress theory. Hence, the parasite-stress theory cannot be tested appropriately by controlling statistically these variables. For example, to control for GDP per capita and/or democratization in an analysis of, say, parasite stress and non-state wars would reduce the ability to detect the predicted relationships, because GDP per capita and democratization are consequences and causes of parasite stress: low GDP per capita and low democracy derive from high parasite stress (and associated collectivist values) and feedback to increase parasite stress, and high GDP per capita and high democracy result from low parasite stress (and associated individualistic values) and feedback to reduce parasite stress. (On the bidirectional relationship between parasite adversity and values, see Chap. 10.) Although some of these variables were statistically controlled in analyses in Letendre et al. (2010) and (2012) it is important to realize that the statistics obtained with such controls are hard to interpret, given that the controls used are effects and

in some cases causes of parasite stress and values. (See also the discussion of the partialling fallacy in Chap. 5.)

Hegre and Sambanis (2006) point out that published analyses of civil conflicts across countries are highly variable in specifications of relevant statistical-control variables. They then say this is because “[W]e do not know the true model” (p. 513). The models of human activity that are most general and useful for scientific discovery are those based in the evolutionary science of human functional design (examples are the empirical cornucopia from Hamilton’s model of nepotism; Trivers’ model of direct reciprocal altruism; Alexander’s model of indirect reciprocity and reputation; see Chap. 2). Hence, the most encompassing and useful models of human political conflict will be those based in human mental functional design resulting from an evolutionary history of selection for inclusive fitness maximization; hypotheses ignoring evolved mental adaptations are of limited scientific value. In the long tradition of political conflict research, there is no generally accepted model, because the research has not been inspired by evolutionary theory. This chapter is an attempt to identify a general model of intergroup conflict that is inclusive of all the values and their effects that arise under high parasite stress as well as under emancipation from parasite stress. These values interact with men’s psychological war adaptation.

The parasite-stress theory does not suggest that there is evolved adaptation that functions specifically in the context of one or more of the various types of political conflicts we have addressed in this chapter. Hence, there is no adaptation functionally designed for civil war per se, or for coups. Instead, the theory implies that these conflicts are manifestations of moral psychological adaptation designed for historically adaptive in- and out-group relations coinciding with the level of local parasite stress.

Moreover, the theory does not imply or require that these conflicts are adaptive currently. For example, it does not predict that civil war, on average, has a net benefit in promoting inclusive fitness of the warriors. From the theory, the adaptive value is in terms of the moral psychological adaptation, and solely in evolutionary historical environmental settings that caused its evolution by direct selection. Modern human environments often differ greatly from the evolutionary historical settings that were responsible ultimately for the effective selection of human traits. Each of the types of conflicts we have treated may be currently adaptive or maladaptive at the individual level, depending on the circumstances.

As mentioned above, the parasite-stress theory of intergroup conflict is compatible with the proposals in the scientific literature that men’s sexually selected pursuits of high mate number affect positively men’s decisions to engage in coalitional aggression (e.g., Low 1993; Wrangham and Peterson 1996; Buss 2004). Low (1990) reported that, across traditional societies, polygynous marriage systems are more frequent in geographical regions of high parasite stress than in regions of low parasite stress (see Chap. 6). She also found that, in traditional societies, wife-capture from neighboring groups by warring men is most frequent under high parasite stress. These findings support Low’s hypothesis that high parasite stress intensifies sexual selection on males (i.e., increases the variance among men in access to mates

with whom children are produced). In this case, the sexual selection intensity stems from parasites generating high phenotypic and associated genetic variance in male quality that is visible to females during mate choice. Hence, parasite stress, through its effect of enhancing polygyny and associated limitations on men's access to mates, may generate a net benefit of intergroup aggression to obtain out-group mates.

Klavina et al.'s (2011) recent study supports our thinking that collectivism is a cause of intergroup conflict and war. In Chap. 6, we discussed the evidence in that study indicating that collectivist men, compared to individualistic men, are more concerned about out-group men taking their mates. This concern of collectivist men is part of their prejudice against out-group men and may contribute to the relationship between collectivism and intergroup coalitional aggression as well as interpersonal aggression.

We emphasize that the parasite-stress hypothesis of intergroup political conflict is consistent with an important role for nepotistic coalitions in warring decisions (e.g., Low 1993). Nepotistic adaptation is central to collectivism and hence, as we have explained, to cooperation in warring. Also, as we have stressed, collectivism is more than nepotism: it includes in-group assortative favoritism toward others with like values but who are not genetic relatives. Both of these aspects of collectivism, according to the parasite-stress theory of values and its empirical tests (Chap. 5), are related causally and positively to parasite stress.

## 12.10 Limitation of Our Findings on Intra-Nation Conflicts

Our treatment of international war, in relation to the parasite-stress theory, is quite preliminary, as we could not separate the Global Peace Index components pertaining to intra-nation conflict versus inter-nation war.

## 12.11 Prospects for Eliminating Civil Conflicts

Letendre et al. (2010) discuss evidence that, since about the end of World War II, civil wars have killed six times as many soldiers as international wars. If, over this period of time, intra-nation wars other than civil wars are added, the number of warrior deaths from civil conflicts in general would be even more in excess of the number resulting from international wars. Of course, warrior deaths from these conflicts are only part of the mortality they cause. Often in civil conflicts of all types, non-combatants suffer high mortality as well (Ghobarah et al. 2003). We assume that many people would agree on moral grounds that less civil conflict is conducive to a better world than is more civil conflict. The solution to attaining this moral goal offered by the findings in this chapter is to reduce parasite stress across the world. According to the parasite-stress theory of sociality, foreign aid in the forms of

sanitation infrastructure, medical assistance, health education and other means of reducing parasite adversity would reduce the incidence of civil conflicts in the geographical areas of high current conflicts by shifting values toward more liberalism while simultaneously creating democratic institutions.

With K. Letendre, we have proposed a disease trap, by which nations in regions with high levels of infectious disease become trapped in self-reinforcing poverty (Letendre et al. 2010; also see Bonds et al. 2010, 2012). As we explained in Chap. 11, infectious disease depresses economic development through its negative effects on human capital. Additionally, as we have discussed, the xenophobia evoked by high intensity of infectious disease further diminishes the willingness of people to invest in public goods and services that are shared across groups, such as economic and health infrastructure, municipal clean-water sources and sanitation systems; xenophobia also diminishes the willingness to engage in transactions with neighboring groups for useful ideas, goods and technologies. Moreover, the violent conflict that erupts among impoverished collectivist groups who are unwilling to seek cooperative solutions when inter-group competition arises further compounds the infectious disease problem as violent conflict causes death, disability, and disease beyond those killed directly in conflict (Ghobarah et al. 2003).

Other researchers have recommended international aid targeted at building economic institutions in conflict-ridden regions (e.g., Elbadawi and Sambanis 2000). Considering the effects infectious diseases have on societies, we instead recommend international aid be targeted at the control and elimination of these diseases. Based on our findings in this chapter and in Letendre et al. (2010, 2012), we advocate that this sort of targeted aid has the greatest potential to get directly to the root cause of poverty and civil conflict, and to disrupt the infectious disease trap that locks billions of people into poverty and civil conflict. Dunn et al. (2010) found that governmental investment in public health significantly and negatively affects the number of cases of human parasitic diseases; thus, there is evidence that such directed investment in public health can be effective.

We also stress that it is in countries with a high intensity of infectious disease that foreign aid directed at economic development may be most frequently misappropriated for the personal benefit of corrupt government officials. In Chap. 11, we showed that parasite stress correlates strongly and positively with governmental corruption cross-nationally. It is widely recognized by scholars that foreign aid directed to corrupt governments is largely wasted (e.g., Burnside and Dollar 2004; Easterly and Pfutze 2008); yet, because the adversity of infectious disease causes both poverty and the establishment of autocratic and corrupt regimes, foreign aid directed at alleviating this poverty is necessarily directed toward countries where it is most likely to be misappropriated or otherwise squandered by corrupt governments. We suggest, too, that direct economic aid may be more readily misappropriated, whereas aid directed at diminishing the intensity of infectious disease, such as delivery of vaccines or the construction of sewage-treatment facilities and municipal water systems, may be more likely to provide the intended benefit to the people of these countries.



## 12.12 The American Civil War

As discussed in Chap. 1, the American Civil War (1861–1865) has received much attention from scholars. There we claimed that our analysis of civil conflicts would elevate understanding of this war by placing it in the context of a general hypothesis of civil conflict as provided by the parasite-stress theory of values. At the very minimum, our findings tell scholars of this war that they should study the parasite-stress theory of values and its diverse empirical discoveries, including those pertaining to civil conflicts. Most generally, evidence indicates that the American Civil War, like other such wars wherever and whenever they occur, was caused ultimately by evolution by selection that favored psychological features that defend against infectious disease and was caused proximately by the collectivism that high parasite stress evokes. That is why the high parasite region of the USA was antagonistic toward the North and its ways and values and then seceded from the United States forming the Confederate States of America that fought for its independence from the United States. The clash of different regional values is now understandable as arising from the difference in parasite stress between the North and South and the region-specific values evoked as a result. This provides clarity as to why slavery was a major political agenda in the war. Inequality of people is a part of collectivist morality whereas equality is individualist morality.

The parasite-stress theory also explains other topics on which there is frequent speculation among researchers interested in the American Civil War. The reason the South lost the war was because of collectivist values and associated high parasite stress. The American Civil War was an early industrial war. It involved railroads, telegraph, ships, sophisticated weaponry, and other technology. Collectivist values limited the South's technology, because of the reduced innovations and openness to new technologies associated with these values. The more innovative and technologically advanced North was sure to win from the beginning. And why did the South continue to fight long after it was clear that defeat and surrender were inevitable? Collectivism's dutiful rigidity toward the values and goals of the in-group provides a fundamental answer that is corroborated by the diverse evidence discussed throughout this book.

## 12.13 Team-Sport Competition in the USA

Team sports are based on intergroup conflict. The broad applicability of the parasite-stress theory of intergroup conflict is seen not only in the range of such conflicts discussed above, but also in its ability to predict the diversity of sports teams in a region. Dan Colman, a doctoral student at The University of New Mexico, first saw the relevance of the parasite-stress theory for study of the regional diversity of team sports (D. Colman, unpublished manuscript, May 7, 2011). Team athletic programs from children's sports through high school, college and university to the

professional level emphasize the in-group's mission of winning over that of individual team member's success. Training of these athletes at all levels prioritizes the group's unity for the success of the collective. Individualism is strongly discouraged. The training promotes collectivist values of embeddedness in the team as the means of success in intergroup battles or games. Team supporters or fans join the team players to influence and celebrate wins by their favorite team. Team sports arise from collectivist values and, as we have shown, collectivist values are regionally local in scope. Collectivism involves parochial embeddedness in a local collective and its boundary from outlander groups. This same kind of thinking led to our research with Kenneth Letendre on intergroup warfare, discussed above.

Given these considerations, sports team involvement, support and diversity are anticipated to covary positively with collectivism (negatively with individualism) and parasite stress across certain regions. Dan Colman examined the diversity component of this hypothesis as applied to collegiate football, basketball and baseball teams (Division 1 and 2 teams) across the states of the USA in 2010. (Data are at the National Collegiate Athletic Association's data and statistics web site: <http://www.ncaa.org/wps/wcm/connect/public/NCAA/Resources/Stats/>). As predicted, he found, across the 48 continental states, that the total number of such teams per state shows a significant, positive relationship with Vandello and Cohen's (1999) collectivism ( $r=0.44$ ,  $p=0.002$ ) and *Parasite Stress USA* ( $r=0.47$ ,  $p=0.0007$ ). (These measures of collectivism and parasite-stress are described in Chap. 5.) As expected, the number of these teams per state correlates strongly and positively with state population size. (Data for the year 2000 are at <http://www.census.gov/popest/>) Both collectivism and *Parasite Stress USA*, however, show a significant relationship with the number of the teams per state when population size per state is controlled statistically (partial  $r$  for collectivism= $0.29$ ,  $p=0.05$ ; for *Parasite Stress USA*,  $r=0.41$ ,  $p=0.004$ ). The evidence discussed indicates that collectivism and parasite stress promote local in-group ethos and boundary, which yield more team-sport teams as each of these variables increases.

## 12.14 Summary

This chapter documents the applicability of the parasite-stress theory of values to the frequencies of the major types of within-nation intergroup conflict across contemporary countries: civil wars, non-state wars (intrastate wars in which warring groups do not include the government of the state), and coups and revolutions. Collectivist values of people promote interdependence with, and loyalty toward, in-group members (ethnocentrism) and goals but antagonism toward out-group members (xenophobia) and goals. Host-parasite antagonistic coevolutionary races produce variation among regions in the specificity of immune defenses and of parasites. According to the parasite-stress theory, the collectivist values of ethnocentrism and xenophobia are defenses against novel infectious diseases harbored in out-groups and to which local people are not adapted. From this, we proposed that

high parasite stresses and associated collectivist values, then, promote all the major types of within-region civil conflict. As predicted, based on this, the frequency of civil wars, non-state wars, and coups and revolutions are associated positively with parasite stress and collectivism across countries of the world; peacefulness shows the predicted negative relationships with parasite stress and collectivism. These findings indicate that occurrences of civil conflicts would be reduced by reducing parasite stress and associated collectivist values.

The parasite-stress theory of values provides a general causal model of intergroup conflict. The American Civil War is revisited in light of this general model. We show, too, that the parasite-stress theory of values applies to coalitional conflict as seen in team sports. We discuss how the parasite-stress theory of intergroup conflict relates to other hypotheses for coalitional aggression.

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