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Aversive societal conditions explain differences in "dark" personality across countries and US states

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Humans differ in their levels of aversive ("dark") personality traits such as egoism or psychopathy. Building upon theories suggesting that socioecological factors coshape the development of personality traits, it can be predicted that prior aversive societal conditions (ASC) (herein assessed via corruption, inequality, poverty, and violence) explain individuals' levels of aversive personality (assessed via the Dark Factor of Personality, the common core underlying all aversive traits). Results considering individuals from 183 countries (N = 1,791,542) and 50 US states (N = 144,576) support the idea that ASC coshape individuals' levels of aversive personality.

antisocial | cross-cultural | personality | societal conditions | traits

Ethically and socially aversive behavior (e.g., exploitation, fraud, violence) occurs daily, posing severe threats to individuals and societies at large. As with virtually all human behaviors, individuals differ in their tendency to engage in aversive behavior. Within psychology, a particularly prominent approach to study such differences is to consider aversive ("dark") personality traits such as Machiavellianism or sadism (1). Defined as "relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances" (2), personality traits explicitly represent individuals' tendencies to show conceptually related behaviors, such as various kinds of aversive behavior, across situations.

Recent advances in personality research have provided strong evidence for the existence of a single disposition underlying *all* aversive traits (3, 4). The Dark Factor of Personality (D) offers a clear conceptualization of this disposition, defined as "the general tendency to maximize one's individual utility—disregarding, accepting, or malevolently provoking disutility for others—accompanied by beliefs that serve as justifications" (3). Much like the *g* factor of intelligence, D represents the "aversive essence of personality," from which all aversive traits arise as specific manifestations. The latter, in turn, accentuate certain aversive characteristics and/or blend aversive and nonaversive characteristics (e.g., disinhibition in the case of psychopathy). Put simply, D is the underlying trait that predisposes individuals to engage in all kinds of aversive behaviors, as dictated by the idea of a reflective construct. This conceptualization has been supported by several findings, including D predicting behavioral outcomes such as dishonesty, selfishness, or outgroup harm, with specific aversive traits typically not yielding any incremental validity beyond D for self-serving behavior at the cost of others (5). Given that D is the personality disposition underlying aversive behavior, it is crucial to understand what shapes it.

It is well-documented that both genetic and socioecological factors shape individuals' levels in personality traits (6) and that societies vary in the proliferation of traits. Several, not mutually exclusive, theories provide an explanation for the latter. From a broad behavioral ecology perspective, societal variation in traits might be seen as a result from adaptive phenotypic plasticity (7). This suggests that there are, on average, different trait levels across societies because individuals' trait levels develop in response to societal environments so to enhance success and survival. More specifically, theories suggest that personality traits are coshaped by i) social learning processes (e.g., customs, daily practices, norms), ii) situational affordances and demands, and iii) state-behavior feedback loops that reinforce or discourage certain behaviors (7–9). Based on these theories, it can be predicted that aversive societal conditions (ASC) contribute to the proliferation of D across societies. Two lines of reasoning support this proposition.

First, in societies characterized by aversive conditions, there is a greater risk of being exploited by others. Following tenets from social dilemma research (10), selfish or noncooperative tendencies can become adaptive means to protect oneself from exploitation. Consequently, higher levels of D can be seen as an adaptive response to situational demands, helping individuals avoid being exploited by others.

Second, in societies characterized by aversive conditions, individuals are more likely to perceive aversive behavior as common, functional, and justifiable. Following tenets from

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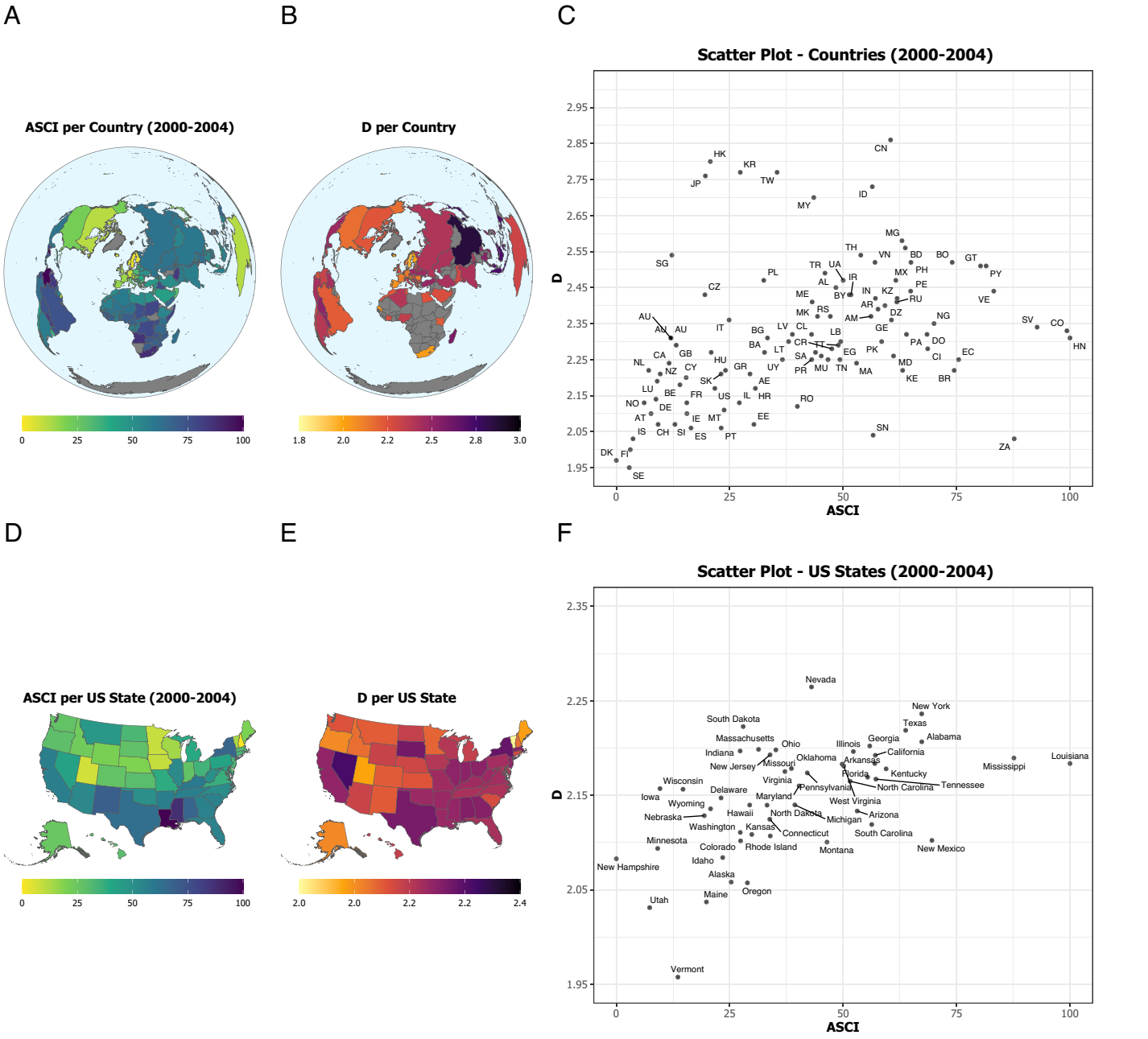

Fig. 1. (*A*) Aversive Societal Conditions Index (ASCI) across countries. (*B*) Differences in mean levels of D across countries with at least 100 participants. (*C*) Scatterplot of ASCI and mean levels of D by country with at least 100 participants. (*D*) ASCI across US states. (*E*) Differences in mean levels of D across US states with at least 100 participants. (*F*) Scatterplot of ASCI and mean levels of D by US state with at least 100 participants. Except for panels (*A*) and (*D*), we excluded countries/states with fewer than 100 participants to avoid potentially misrepresenting a country/state based on very few participants only. The theoretical range of the ASCI is 0 to 100, and the theoretical range of D is 1 to 5. The means of the ASCI were 38.26 (*SD* = 23.24) for the worldwide and 46.26 (*SD* = 17.09) for the US analyses, and the means of D were 2.52 (*SD* = 0.74) for the worldwide and 2.17 (*SD* = 0.74) for the US analyses.

social norms research (11) and the need to justify immoral and unethical behavior (12), ASC should foster the adoption of more competitive, distrusting, and normless beliefs, which are essential to D (3). Consequently, higher levels of D can be seen as a result of learning what is widespread and tolerated by society.

To test the proposition, we construct an ASC index using four variables: corruption, inequality, poverty, and violence, jointly reflecting societal conditions in which self-serving behavior at the cost of others can be perceived as adaptive, justifiable, the norm, and/or nonsanctioned. For instance, higher levels of corruption imply a (de facto) tolerance of, and widespread engagement in, behavior aimed at gaining personal benefits at the cost of others, especially society at large. For the main analyses, we constructed the ASC index with data assessed about 20 y before the assessment of D, because this time lag arguably provides a period allowing ASC to have coshaped our participants' levels of D, while it virtually excludes the possibility of reversed causality (our participants affecting the ASC index; for a similar reasoning, see ref. 13).

Results

Our data include individuals from 183 countries and 50 US states, which both vary substantially in the aversiveness of their societal conditions (Fig. 1 *A* and *D*). Based on bivariate multilevel regression analyses with participants nested in countries and US states, respectively, we found a statistically significant, small positive relation between the

country-wise ($n_{countries}$ = 183, $n_{participants}$ = 1,791,542; $\beta_{standardized}$ = 0.09, 95% CI[0.05, 0.13], $p_{two\text{-}tailed}$ < 0.001) and the state-wise (n_{states} = 50, $n_{participants}$ = 144,576; $\beta_{standardized}$ = 0.04, 95% CI[0.02, 0.05], $p_{two\text{-}tailed}$ < 0.001) ASC index and individuals' levels of D. Specifically, we found that a one SD increase on the ASC index was associated with an increase of 0.09 to 0.04 SD in individuals' levels in D across countries and US states, respectively. Controlling for age and gender, these results remain qualitatively similar across countries ($n_{countries}$ = 183, $n_{participants}$ = 1,770,873; $\beta_{standardized}$ = 0.06, 95% CI[0.02, 0.09], $p_{two\text{-}tailed}$ = 0.001) and US states (n_{states} = 50, $n_{participants}$ = 141,139; $\beta_{standardized}$ = 0.03, 95% CI[0.02, 0.05], $p_{two\text{-}tailed}$ < 0.001).

To provide further insights and check for robustness, we conducted several analyses (see Supporting Information). Among these, we tested the robustness of the main finding when relying on more recent assessments of the ASC index (which also provides information concerning whether societal conditions might need time to affect personality levels) and when replacing the ASC index with the Prevalence of Rule Violations index (13). We further gauged the validity of the ASC index by showing its correlations with 12 country-level variables that might also be considered indicators of ASC. Finally, we tested two individual- and four country-level potential moderators. Across the many analyses, results remained robust and support the idea that ASC coshape individuals' levels of D.

Discussion

We find that the extent to which countries and US states are characterized by ASC is associated with individuals' aversive personality levels about 20 y later. This finding aligns well with theories suggesting that socioecological factors coshape the development of personality traits (7–9) and substantially extends existing evidence regarding the essence of aversive personality.

Overall, the observed relations were robust, albeit small in absolute magnitude. This is to be expected as both genetic and other socioecological factors likely also affect individuals' aversive personality. Moreover, even relatively small effects can be cumulative in nature (14, 15), so the relation between ASC and D may have important consequences at scale—especially because higher aversive personality levels imply notable costs for others and/or society.

Next to its strengths (e.g., large sample size, "objective" assessment of ASC), the study has some limitations. First, we do not know how long participants have resided in their assessed country or US state and thus how long ASC may have exerted an influence on their personality. Relatedly, whereas theories at least implicitly assume that some time is required for societal conditions to exert an influence on personality traits (e.g., social learning processes, state-behavior feedback loops), they are virtually silent about the exact time lags. In turn, the present findings across multiple time lags may serve as a starting point for such theory specification. Second, we relied on online convenience samples that may come with self-selection effects. Third, for 86 of the countries included, we had data from fewer than 100 participants. Statistically, we accounted for this fact through multilevel regressions that place less weight on countries with only a few observations available.

Materials and Methods

For D, we used data collected between 02.02.2019 and 02.09.2024 via the website https://qst.darkfactor.org. We included participants whose self-reported country of living matched their geolocated country. Applying this and all general inclusion and exclusion criteria for data from this website (https://osf.io/93tw6), the final sample comprised 1,791,542 participants from 183 countries. Data collection was approved by the local ethics committee (IRB) of the University of Kaiserslautern-Landau (Germany), Department of Psychology (#LEK-154, #LEK-567), and informed consent was obtained from all participants prior to completing any measure.

For the ASC index, we constructed one indicator per country and US state using a principal component analysis based on four "objectively" assessed variables representing corruption, inequality, poverty, and violence.

Data, Materials, and Software Availability. Data, code, material, and further information are available via the Open Science Framework: https://osf.io/ajv65/ (16).

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