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Bright lights, big city: The Dark Triad traits and geographical preferences☆

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ABSTRACT

There are many niches people can occupy and some people may fit better in certain niches than others as a function of their personality. Two simple questions were considered presently. Are people characterized by the Dark Triad traits also characterized by a bias towards living in the city and if so as they are, what features of the city-living draw them towards such geographical preferences? Study 1 (N = 753, students) assessed the correlations between population density and size and the Dark Triad traits. Study 2 (N = 270, MTurk) asked participant's where they lived and compared rates of the Dark Triad traits. Study 3 (N = 273, MTurk) assessed where people wish they lived based on location (e.g., city, suburbia) and features of that environment and related that to the Dark Triad traits. Across three studies, there was a tentative-yet-methodologically robust bias of those who are high in the Dark Triad traits—especially psychopathy—towards city life. In Study 3, sex differences in the features people want in where they live and how the Dark Triad traits correlated with the featural preferences were examined and suggested effects consistent with life history theory. Results are discussed using life history and selection-evocation-manipulation paradigms.

Folklore holds that "evil" people live in the city. Modern movies are replete with stories about how the young rural/suburban-boy/girl yearns to move to the exciting city, sometimes with dire consequences. In at least one famous movie—*Footloose*—a city-boy moves to the country and seriously shakes up the town. Might there be something to this old wisdom; do people characterized by "evil" traits prefer to live in the city? If so, what features of city-living draw them in? In three studies, these questions were examined in relation to the Dark Triad traits as indicative of individual differences in what most would consider "evil" given their exploitive (Jonason & Webster, 2012) and selfish (Jonason, Strosser et al., 2015) nature along with their links to the commission of sin (Jonason, Zeigler-Hill, & Okan, 2017).

There has been a recent spate of interest in the Dark Triad traits (see Furnham, Richards, & Paulhus, 2013) to compliment the work in personality psychology on the Big Five traits (see McCrae, 2002). The Dark Triad traits are characterized by vanity and self-centeredness (i.e., narcissism), manipulation and cynicism (i.e., Machiavellianism), and callous social attitudes and amorality (i.e., psychopathy). The traits capture some of the darker aspects of personality traits in non-clinical populations (Paulhus & Williams, 2002). However, because these traits are typically considered social pathologies (Kowalski, 2001), many questions about their non-clinical functioning in people's day-to-day life remain. Most work on these traits has examined questions related to their origin (Vernon, Villani, Vickers, & Harris, 2008), their interpersonal functionality (Jonason, Li, Webster, & Schmitt, 2009), the best way to measure them (Miller et al., 2012), and the effects they have on society (Jones, 2013). Personality traits—when viewed as dispositional biases composed of motivation features (Jonason & Ferrell, 2016) that influence how they view the world (Jonason et al., 2018)—may orient individuals to having various preferences. One potential preference in the Dark Triad traits is examined here; a preference for living in the city.

1. Personality and place preferences

For all species, the correct choice of habitat is fundamentally important because such habitats contain mating opportunities, food, and mortality threats (Chase & Leibold, 2003). Ancestral, hunter-gatherers, living in small scale, highly interconnected societies, were likely to not have much room for niche specialization or diversification because selection (i.e., mortality) pressures were stronger compared to subsequent generations. Humans now occupy a wider geographic distribution than any other species and may have done so since the agrarian revolution 12,000 years ago (Diamond, 1999). Within those

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geographies, there has been a diversification of micro-niches over the past 300–500 years, of which cities is one (Figueredo et al., 2007). As individuals specialize in particular solutions to life's great challenges—mating and survival—certain psychological features will provide greater success than others (MacDonald, 1995, 1998). Some of the psychological features are personality traits (Buss, 1987; Oishi, 2014). For example, introverts prefer rural/mountainous living conditions (Oishi, Talhelm, & Lee, 2015) which may reflect their need to minimize social interactions. Alternatively, those high in narcissism live close to the equator (Jonason & Schmitt, 2017) which may reflect why physical attractiveness is so central to narcissism (i.e., more diseases exist around the equator and physical attractiveness signals health) or, because more people live around the equator than farther from it, living in population dense areas might better serve the narcissist's ego-needs of external validation than less densely populated areas. As people gravitate towards new micro-niches, those better at exploiting those niches (i.e., surviving and reproducing) will pass on their preferences for that niche—paired with the traits that afforded greater success—to their offspring.

The contention here is that people characterized by the Dark Triad traits may be especially well-suited to city-living. Unlike traditional conditions which mirror rural conditions (Oishi, Talhelm, & Lee, 2015), cities present conflicts (e.g., strangers, diseases like the Plague) for a species that tends to want to form long-term bonds, to build trust, and to invest heavily in a few number of offspring or mates. Even in modern cities, this (default) "slow" life history strategy is evident (Sng, Neuberg, Varnum, & Kenrick, 2017) because this is the characteristic life history strategy of *Homo sapiens* (Wilson, 1975). Moreover, many people are "forced" to live in cities by accident of birth or for economic reasons. Nevertheless, some people might be better suited for city living and, therefore, prefer it. There is some evidence that those high in the Dark Triad traits occupy and exploit specific mating niches that are likely to (1) be characterized by others high in those traits and (2) be where they can satisfy their short-term mating and hedonistic agendas (Jonason, Foster, McCain, & Campbell, 2015). The basic prediction here is that those high in the Dark Triad traits should prefer to live in the city.

But why might those high in the Dark Triad traits prefer to live in the city? At their heart, evolutionary models of personality are functionalist in nature. This means, the city must serve certain functional goals (Chase & Leibold, 2003; MacDonald, 1995, 1998). When selecting one's preferred niche, people high on the Dark Triad traits should prefer features in that location that serve their goals of casual sex (Jonason et al., 2009), social exploitation (Jonason & Webster, 2012), hedonism (Kajonius, Persson, & Jonason, 2015), and a fast pace of life (Jonason, Koenig, & Tost, 2010). In contrast, they are likely to be biased against places they might deem as boring by virtue of ruralness or naturalness, proximity to water and work, and pleasantness (i.e., indicators of the primitive ecology for people). Such naturalistic and even primitive socioecologies would be more strongly linked to slow life history strategies given their approximation with the environment for evolutionary adaptations for the species as opposed to some specialist niche like the city. That is, personality traits may be drawn to and pushed away from particular environments that are congruent and incongruent (respectively) with their life history strategy. And last, as ostensible adaptations, as opposed to pathologies, they might want a place that is far from family given the externalities pursuing an exploitive social strategy can place on those near them.

Finally, there are pervasive sex differences in the Dark Triad traits, suggesting men are better characterized by these traits than women are (Jonason et al., 2017). The life history interpretation of these sex differences suggests that because the cost-benefit ratio for being socially antagonistic was and is more favorable for men than for women (Figueredo et al., 2006; Jonason & Lavertu, 2017), selection will lead men to being better characterized by these traits than women are over time. What is more interesting here, however, is that there might be potential *sequalea* of being high on the Dark Triad traits in terms of geographical preferences. If men are higher on the Dark Triad traits than women are and those high in these traits have specific preferences in the features of the places they live, one might expect that sex differences in featural preferences should be mediated by individual differences in the Dark Triad traits. For instance, men, as a function of their fast (e.g., *r*-selected; focused on mating and immediate satisfaction of needs) life history strategies should want to live in places that contain more mates, more excitement, a faster pace, a large population, opportunities for exploitation, and proximity to night life (i.e., stereotypical features of city-living). These features would lead men to be more successful in their mating and social goals than if they lived elsewhere and those men who were higher on the Dark Triad traits should be particularly interested in these features. In contrast, women, with their slower (i.e., *K*-selected; survival-focused, delayed needs) life history strategies, should prefer locations that are safe and reflective of primitive ecologies (i.e., pleasant and near nature) and low scores on the Dark Triad traits in women should facilitate this preference.

There has been considerable attention to the Dark Triad traits in the past ten years. Three studies assess the geographical preferences associated with the Dark Triad traits. Such associations seem reasonable at the proximal level whereby personality traits influence how people select and structure their environments (Buss, 1987) and at the ultimate level whereby personality traits can best afford Darwinian fitness when paired with specific socioecological preferences (MacDonald, 1995, 1998). However, to date, the research on geographical preferences has been confined to non-humans like the Great tit (*Parus major*; Serrano-Davies, O'Shea, & Quinn, 2017) and the Big Five traits (Oishi, Talhelm, & Lee, 2015) or was too specific in relation to mating niches and the Dark Triad traits (Jonason, Foster et al., 2015). These studies represent the first attempts to understand the geographical living preferences of those characterized by the Dark Triad traits.

2. Study 1

In Study 1, zip codes, provided by a large sample of Texan undergraduates, were paired with data on population size and population by square miles. These factors were then correlated with the individual-level Dark Triad traits. Tests for sex differences and moderation were also conducted to test whether the correlations differed in the sexes. Primarily, the Dark Triad traits should be positively correlated with population rates and population density.

2.1. Method

2.1.1. Participants and procedure

A sample of 735 (503 women) undergraduates from the University of Texas at Austin completed several measures in a mass-testing session. Participants were aged between 17 and 45 years of age (M = 18.77, SD = 1.62). Participants identified at 55% White/Caucasian with 71% living in a dormitory.[1] No stipulations were set on sample size in this study. Participants were informed of the nature of the study, took a series of self-report measures, and were thanked for their participation.[2]

2.1.2. Measures

The Dark Triad Dirty Dozen (four items per facet) was used to measure the Dark Triad traits (Jonason & Webster, 2010). When data was collected (2012), no other short measure of the Dark Triad traits had been published. Participants were asked how much they agreed (1 = *Not at all*; 5 = *Very much*) with statements such as: "I tend to want

[1] Results were not affected by the living circumstances of participant's living conditions.

[2] This represents cleaned data from Jonason (2014) that only contains those who provided zip codes.

others to admire me" (i.e., narcissism), "I tend to lack remorse" (i.e., psychopathy), and "I have used deceit or lied to get my way" (i.e., Machiavellianism). Items were averaged to create indexes of narcissism (Cronbach's α = 0.75), Machiavellianism (α = 0.72), and psychopathy (α = 0.70).[3]

Participants reported the zip code of "where they live". Two research assistants collected data from an online source[4] on population and population density (by miles) for each zip code. The average participant lived in a zip code with 37,954.21 people (*SD* = 38,318.33, *Range* = 111 to 904,446) and with a mean population density of 2592.16 (*SD* = 2517.71, *Range* = 1.48 to 245,697.12). Despite the apparent skew of this data, results were largely the same when examining natural log-transformed versions of both, therefore, only the correlations with the untransformed data are reported below.

2.2. Results and discussion

There were no sex differences in whether people lived in populated or densely populated areas. Unsurprisingly, given the use of a college-student sample, weak associations were detected (more details are available upon request). As expected, psychopathy was (weakly) correlated with population rates ($r(728) = 0.10$, $p < .01$), which may be consistent with their need for numerous targets of exploitation. Similarly, narcissism was (weakly) correlated with population density ($r(728) = 0.08$, $p < .01$) which may be reflective of a lifestyle narcissists prefer. And last, Machiavellianism was weakly correlated with population rates, an effect that was approaching significance ($r(728) = 0.06$, $p < .10$). The only significant residual that remained when controlling for shared variance in the Dark Triad traits using multiple regression was with psychopathy and population density in women ($\beta = -0.10$, $p < .05$). When the correlations were examined in men and women separately, psychopathy was negatively correlated with population density in women only ($\beta = -0.10$, $p < .05$) and psychopathy was correlated with population size in men only ($\beta = 0.14$, $p < .05$). This may reveal women's aversion to the "fast" life and men's attraction to it, as revealed by the Dark Triad traits (Jonason, Koenig, & Tost, 2010).

3. Study 2

Population rates and density are only two ways to assess living preferences. Results from Study 1 were weak in magnitude and provide only tentative evidence for the general hypothesis. Therefore, Study 2 examines where participants claim to live (e.g., city, rural) and assess the rates of Dark Triad traits in each location in an adult sample. Again, whether there are sex differences in these preferences and moderation of the associations were assessed. Like in Study 1, the primary prediction is that the Dark Triad traits should have a bias towards city-living, but here is should be seen in higher scores on a measure of the Dark Triad traits in the city as compare to other locations.

3.1. Method

3.1.1. Participants and procedure

A sample of 270 (123 women) Americans were paid US$0.50 to participate in an online study (data collection is 2015) through Mechanical Turk (94%) and social media (6%). The average age of the participant was 32.01 (*SD* = 10.96), with a range of 15–75 years, was single (82%), heterosexual (88%), and of European decent (77%). The minimum sample size was determined based on power analysis (> 0.80) for the average effect size in social and personality psychology ($r \approx 0.20$; Richard, Bond, & Stokes-Zoota, 2003) and guidelines ($N \approx 250$) set for reducing estimation error in personality psychology (Schönbrodt & Perugini, 2013). Participants were initially informed of the nature of the study. Then they proceeded through several self-report measures. Upon completion participants were thanked and debriefed.

3.1.2. Measures

The Dark Triad Dirty Dozen was used to measure the Dark Triad traits (Jonason & Webster, 2010) like it was above. It was used here for its efficiency as opposed to other, lengthier measures. Items were averaged together to create an index of narcissism (Cronbach's α = 0.85), Machiavellianism (α = 0.81), and psychopathy (α = 0.80).[5]

To assess living preferences, participants were asked to choose which label best described where they lived. They were presented with the options of "city", "suburb", "rural", and "beach". The sample lived primarily in the city (37%) and suburbs (43%) with a small minority living in rural (18%) and the beach (< 0.5%). Given this imbalance, the only comparisons reported were between those living in a city and those in suburbs.

3.2. Results and discussion

There were no sex differences in where people lived. No 2 (sex) × 2 (location) interaction was present, therefore, basic analyses are reported here. Men ($M = 2.28$, $SD = 0.95$) and women ($M = 1.94$, $SD = 0.86$) only differed on psychopathy ($t(266) = -3.00$, $p < .01$, Cohen's $d = -0.37$), with patterns in the right direction for narcissism ($t = -0.69$) and Machiavellianism ($t = -1.82$). Importantly (Fig. 1), those who lived in the city indicated they were higher in psychopathy ($t(216) = 2.29$, $p < .05$, $d = 0.31$), with similar trends in narcissism ($t = 0.48$) and Machiavellianism ($t = 1.43$). Consistent with the hypothesis that the Dark Triad traits would have a city-living preference, psychopathy only was higher in those who reported living in the city as compared to living in suburbia. However, no effects were detected when "city" to "rural" (18%) were compared, but this might be a function imbalanced sample sizes adversely driving power down. No comparisons were made with "beach" as a living condition with under 1% of the sample reporting living there.

4. Study 3

Like Study 1, Study 2 revealed only tentative support for the hypothesis that the Dark Triad traits should express a preference for city-living. Both Studies relied on the Dirty Dozen measure of the Dark Triad traits (for criticism, see Miller et al., 2012) and revealed more about actual living conditions than preferences. If people are incapable of fully realizing their preferences, inquiring about ideal living conditions might reveal effects for the other Dark Triad traits as well. Therefore, in Study 3, rates of the Dark Triad traits—measured with a longer inventory—were compared across preferred living conditions and tests for sex differences was conducted. In addition, this is extended to include potential reasons people might choose their living conditions. Predictions here include, a city-bias in the Dark Triad traits (as shown in group-level differences in the Dark Triad traits across preferred living choices), sex differences in the featural preferences, and mediation of the latter by the former.

[3] Machiavellianism was correlated with psychopathy ($r(733) = 0.39$, $p < .01$) and narcissism ($r(733) = 0.39$, $p < .01$). Narcissism was correlated with psychopathy ($r(733) = 0.13$, $p < .01$).

[4] http://proximityone.com/cen2010_zcta_dp.htm.

[5] Machiavellianism was correlated with psychopathy ($r(268) = 0.39$, $p < .01$) and narcissism ($r(268) = 0.51$, $p < .01$). Narcissism was correlated with psychopathy ($r(268) = 0.38$, $p < .01$).

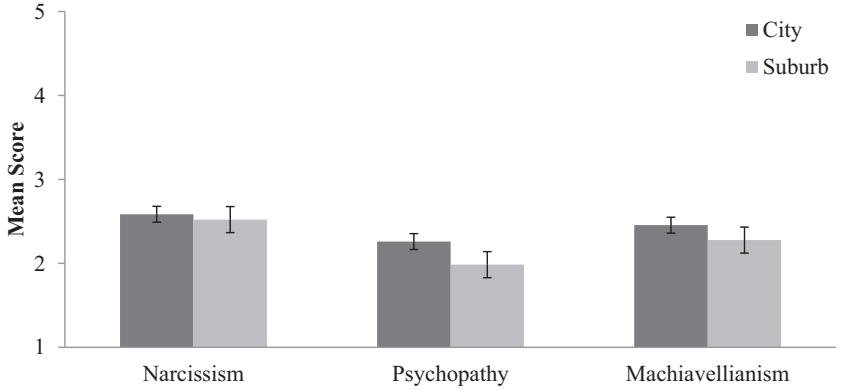

Fig. 1. Comparing Dark Triad trait scores in those who live in the city to those who live in the suburbs (Study 2).
Note. Only a significant difference for psychopathy.

4.1. Method

4.1.1. Participants and procedure

A sample of 273 (128 women) Americans were paid US$1 to participate in an online study through Mechanical Turk (data collected in 2015). The average age of the participant was 34.24 (*SD* = 11.22), with a range of 18–75 years. Sample size minimums were set as they were for Study 2. Participants were initially informed of the nature of the study. Then they proceeded through several self-report measures. Upon completion participants were thanked and debriefed.

4.1.2. Measures

The Short Dark Triad (Jones & Paulhus, 2014) is a concise 27-item personality inventory (nice items on each dimension) measuring Machiavellianism, narcissism, and psychopathy. Participants were asked to report their agreement (1 = *Strongly Disagree*; 5 = *Strongly Agree*) with statements measuring Machiavellianism (e.g., "Most people are suckers"), narcissism (e.g., "I am an average person"), and psychopathy (e.g., "I like to pick on losers"). Items were summed to create indexes of Machiavellianism (Cronbach's α = 0.80), narcissism (α = 0.75), and psychopathy (α = 0.82).[6]

To measure geographical preferences, a forced-choice paradigm was used. Participants were asked where they would prefer to live among four options: *city* (*n* = 69), *beach* (*n* = 81), *rural* (*n* = 59), and *suburbs* (*n* = 63). This method was chosen to reflect trade-offs to help reveal preferences that can be obscured with Likert-style questions.

To assess reasons to live in different locations, a list of 19 *ad hoc* potential descriptors of one's preferred living environment (see Table 1) was created by the author. These items were chosen to maximize breadth and to directly test hypotheses. For instance, items ranged from structural (e.g., technology) and social features (e.g., near nightlife) along with testing exploitive hypotheses regarding the traits (i.e., mating opportunities). Participants were asked how much they felt the items describe the places they would ideally like to live (1 = *Not at all*; 4 = *Very much*).

4.2. Results and discussion

Sex differences in the Dark Triad traits were replicated (full details available), with men scoring moderately-to-extremely higher than women did (*t*s = 3.82 to −6.95, *p*s < 0.01, Cohen's *d*s = −0.46 to −0.85), but there were no sex differences in choice of preferred living condition. Table 1 contains sex differences in featural preference. The sexes were equivalent in wanting to live in places near (1) work, (2) family, (3) restaurants, and (4) bodies of water, and (5) and (6) with intellectual stimulation, (7) where friends could be made, and characterized as (8) rural and (9) trendy. Men (compared to women) desired a place to live that was (1) exciting, (2) fast paced, (3) technologically sophisticated, (4) with plenty of opportunities to take advantage of others (5) with a heavy population of (6) many opposite-sex and (7) same-sex others (8) near nightlife. Women (compared to men) desired a place to live that was (1) pleasant and (2) near nature consistent with the idea that men and women might have featural preferences consistent with their most suitable life history strategy.

In Fig. 2, the Dark Triad traits were treated as dependent variables in three 2 × 4 ANOVAs with participant's sex and chosen (forced-choice) living preferences as fixed factors to test the hypothesis that the Dark Triad traits will have a city preference. Sex differences were as reported in Table 1 and the primary contention regarding living preferences and the Dark Triad traits was confirmed. A main effect of location was not strictly present in Machiavellianism ($F(3, 268) = 2.12$, $p < .10$, $\eta_p^2 = 0.01$) and the effects in narcissism ($F(3, 268) = 2.73$, $p < .05$, $\eta_p^2 = 0.03$) and psychopathy ($F(3, 268) = 4.41$, $p < .01$, $\eta_p^2 = 0.05$) were not equivalent. The main effect in narcissism was driven by a simple effect comparing city living preferences to rural preferences. In contrast, the main effect in psychopathy was between city living preferences and suburban living preferences. In either case, narcissism (somewhat), psychopathy (particularly), and Machiavellianism (slightly) revealed a preference for city living.

To understand what might be behind these living preferences, Table 2 contains correlations (controlling for the overlap among the Dark Triad traits in multiple regressions) between the Dark Triad traits and characteristics of ideal living locations. People characterized by the Dark Triad traits wanted to live in places with many potential mates and victims, is exciting, is fast paced, is heavily populated, and is near nightlife. This is consistent with the fast life history preferences the traits are linked to (Jonason, Koenig, & Tost, 2010). These correlations were invariant across the sexes after adjusting for Type 1 error inflation from multiple comparisons.

Based on the results in Tables 1 and 2, simple mediation tests were conducted. Only the significant ones are detailed here for reportorial economy. In each model, the sex of the participant was entered at Step 1 and the three Dark Triad traits were entered at Step 2. In preferences for an exciting place, the sex difference ($\beta = 0.15$, $p < .05$) was fully mediated ($\beta = 0.05$) by the Dark Triad traits ($\Delta R^2 = 0.08$, $F(3, 265) = 8.15$, $p < .01$); with significant residuals for narcissism only ($\beta = 0.25$, $p < .05$). In preferences for a place with many potential mates, the sex difference ($\beta = 0.30$, $p < .01$) was partially mediated ($\beta = 0.18$, $p < .01$) by the Dark Triad traits ($\Delta R^2 = 0.07$, $F(3, 265) = 7.20$, $p < .01$); with significant residuals for narcissism only ($\beta = 0.13$, $p < .05$). In preferences for a pleasant place, the sex

[6] Machiavellianism was correlated with narcissism ($r(271) = 0.35$, $p < .01$) and psychopathy ($r(271) = 0.57$, $p < .01$) and narcissism was correlated with psychopathy ($r(271) = 0.35$, $p < .01$).

Table 1
Descriptive statistics and sex difference tests for the Dark Triad traits and geographical preferences (Study 3).

	Overall	Women	Men	*t*	*d*
	Mean (SD)				
Geographical preferences	2.96 (0.93)	3.02 (1.00)	2.92 (0.87)	0.87	0.11
A place for intellectual stimulation	2.85 (0.95)	2.89 (0.96)	2.82 (0.94)	0.58	0.07
A place with excitement	2.71 (0.92)	2.56 (0.96)	2.83 (0.87)	−2.43*	−0.30
A place with many potential mates	2.13 (1.05)	1.80 (0.98)	2.43 (1.04)	−5.07**	−0.62
A pleasant place	3.53 (0.65)	3.66 (0.58)	3.42 (0.69)	3.02**	0.37
A place near nature	3.08 (0.89)	3.20 (0.87)	2.98 (0.90)	2.06*	0.25
A place that moves at a fast pace	2.01 (0.89)	1.89 (0.89)	2.11 (0.87)	−2.07*	−0.25
A place where I could take advantage of people	1.35 (0.74)	1.18 (0.51)	1.49 (0.87)	−3.58**	−0.07
A place to make friends	2.80 (0.82)	2.77 (0.87)	2.83 (0.78)	−0.58	−0.07
A heavily populated place	1.98 (0.93)	1.76 (0.88)	2.17 (0.94)	−3.63**	−0.44
A rural area	2.42 (1.00)	2.54 (1.06)	2.32 (0.93)	1.75	0.21
A place near water	2.76 (1.01)	2.84 (1.04)	2.70 (0.98)	1.15	0.14
A place with many opposite-sex others	2.19 (1.00)	1.72 (0.89)	2.59 (0.91)	−7.97**	−0.97
A place with many same-sex others	1.81 (0.81)	1.65 (0.82)	1.94 (0.79)	−2.99**	−0.36
A technologically sophisticated place	2.59 (0.98)	1.65 (0.98)	2.83 (0.91)	−4.57**	−0.56
A hip/trendy place	2.10 (0.96)	2.02 (0.95)	2.18 (0.96)	−1.40	−0.17
A place with restaurants nearby	2.81 (0.87)	2.78 (0.97)	2.85 (0.78)	−0.67	−0.08
A place near nightlife	2.18 (1.03)	1.91 (1.01)	2.41 (0.99)	−4.05**	−0.49
A place near family	2.96 (0.97)	3.07 (1.00)	2.86 (0.95)	1.77	0.22

Note. *d* is Cohen's *d* for effect size.
* $p < .05$.
** $p < .01$.

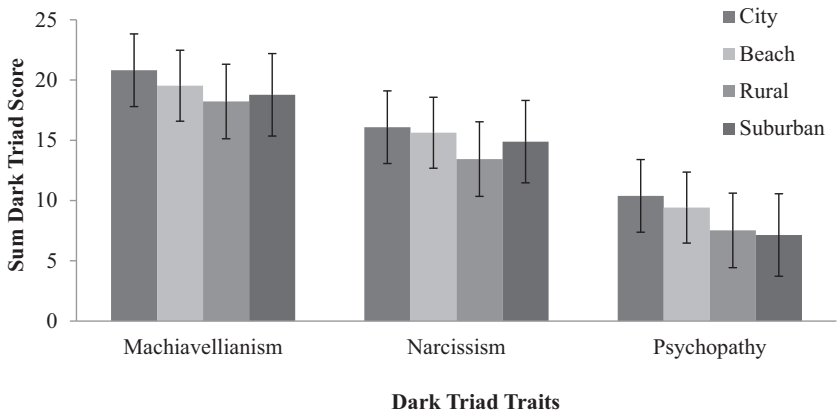

Fig. 2. Sum Dark Triad trait scores as a function of geographical living preferences (Study 3).
Note. Significant differences exist in psychopathy between suburban and city preferences and in narcissism between rural and city preferences.

difference ($\beta = -0.18$, $p < .05$) was fully mediated ($\beta = -0.11$) by the Dark Triad traits ($\Delta R^2 = 0.10$, $F(3, 265) = 9.99$, $p < .01$); with significant residuals for Machiavellianism ($\beta = 0.15$, $p < .05$) and psychopathy ($\beta = -0.39$, $p < .01$).[7] In preferences for a fast-paced life, the sex difference ($\beta = 0.13$, $p < .05$) was fully mediated ($\beta = 0.02$) by the Dark Triad traits ($\Delta R^2 = 0.15$, $F(3, 265) = 16.38$, $p < .01$); with significant residuals for narcissism ($\beta = 0.24$, $p < .01$) and psychopathy ($\beta = 0.28$, $p < .01$). In preferences for a place to take advantage of others, the sex difference ($\beta = 0.22$, $p < .01$) was fully mediated ($\beta = 0.11$) by the Dark Triad traits ($\Delta R^2 = 0.12$, $F(3, 265) = 13.03$, $p < .01$); with significant residuals for narcissism ($\beta = 0.14$, $p < .05$) and psychopathy ($\beta = 0.32$, $p < .01$). In preferences for a heavily populated area, the sex difference ($\beta = 0.22$, $p < .01$) was fully mediated ($\beta = 0.11$) by the Dark Triad traits ($\Delta R^2 = 0.09$, $F(3, 265) = 9.06$, $p < .01$); with significant residuals for narcissism ($\beta = 0.22$, $p < .01$) and psychopathy ($\beta = 0.20$, $p < .01$). In preferences for a place with many opposite-sex others, the sex difference ($\beta = 0.44$, $p < .01$) was partially mediated ($\beta = 0.35$, $p < .01$) by the Dark Triad traits ($\Delta R^2 = 0.04$, $F(3, 265) = 4.55$, $p < .01$); with significant residuals for narcissism ($\beta = 0.12$, $p < .05$). In preferences for a place near nightlife, the sex difference ($\beta = 0.24$, $p < .01$) was fully mediated ($\beta = 0.09$) by the Dark Triad traits ($\Delta R^2 = 0.13$, $F(3, 265) = 14.31$, $p < .01$); with significant residuals for narcissism ($\beta = 0.24$, $p < .01$) and psychopathy ($\beta = 0.14$, $p < .05$). Results are consistent with evolutionary models of the Dark Triad traits in that they appear to facilitate, in men, the active exploitation of others towards adaptive goals and an aversion towards safe and potentially "slow" features. The traits appear to bring along preferences that may serve their bearers in how they prefer to structure their environment, consistent with the selection-evocation-manipulation paradigm (Buss, 1987).

5. General discussion

There has been a multiplicative explosion of the potential micro-niches people can inhabit over the last 500 years (Figueredo et al., 2007). As new niches are created, organisms—people in this case—-move into that void. Those individuals best suited (or fit) to exploit that

[7] When examining preferences of living near nature, the mediation approached significance ($\Delta R^2 = 0.03$, $p < .07$) and mirrored the pattern reported in preferences of living near somewhere pleasant.

Table 2
Zero-order correlations and standardized regression coefficients describing the relationship between the Dark Triad traits and feature preferences (Study 3).

	r (*β*)		
	Machiavellianism	Narcissism	Psychopathy
A place near work	0.01 (0.03)	0.10 (0.13*)	−0.05 (−0.12)
A place for intellectual stimulation	−0.05 (0.06)	0.14* (0.17*)	0.04 (−0.15*)
A place with excitement	0.21** (0.11)	0.30** (0.25**)	0.18** (0.03)
A place with many potential mates	0.31** (0.18*)	0.26** (0.14*)	0.29** (0.14*)
A pleasant place	−0.10 (0.12)	−0.07 (0.04)	−0.33** (−0.41**)
A place near nature	−0.10 (0.02)	−0.12 (−0.07)	−0.19** (−0.18*)
A place that moves at a fast pace	0.21** (−0.04)	0.33** (0.24**)	0.35** (0.28**)
A place where I could take advantage of people	0.24** (−0.00)	0.26** (0.14*)	0.38** (0.33**)
A place to make friends	0.04 (0.03)	0.15* (0.17*)	−0.01 (−0.09)
A heavily populated place	0.18** (−0.03)	0.30** (0.23**)	0.29** (0.22**)
A rural area	−0.08 (0.03)	−0.22** (−0.21**)	−0.12* (−0.06)
A place near water	0.00 (0.01)	0.01 (0.02)	−0.02 (−0.03)
A place with many opposite-sex others	0.31** (0.18*)	0.26** (0.14*)	0.29** (0.14*)
A place with many same-sex others	0.07 (−0.04)	0.14* (0.11)	0.15* (0.13)
A technologically sophisticated place	0.17** (0.12)	0.15* (0.10)	0.13* (0.02)
A hip/trendy place	0.19** (0.08)	0.37** (0.35**)	0.16** (−0.01)
A place with restaurants nearby	0.12 (0.08)	0.23** (0.24**)	0.04 (−0.09)
A place near nightlife	0.32** (0.15*)	0.35** (0.24**)	0.39** (0.15*)
A place near family	−0.20** (−0.14*)	−0.03 (0.07)	−0.20** (−0.14*)

Note. Correlations did not differ in men and women ($p < .001$).
* $p < .05$.
** $p < .01$.

niche survive and reproduce better than others who are less well suited (i.e., the survival of the fittest). This process—over generations—will pair the features (e.g., personality traits) that provided success in that micro-niche with preferences that encourage the individual to gravitate towards its most suitable socioecology (MacDonald, 1995, 1998). Work in personality psychology suggests that one of the primary ways that personality traits interact with the social world is by leading people to have preferences for important things like mates (Buss, 1987). It seems logical that personality traits may also lead individuals to select certain living environments because environments provide access to food, mates, and psychological needs (Jonason, Foster et al., 2015; Oishi, Talhelm, & Lee, 2015; Serrano-Davies, O'Shea, & Quinn, 2017). These studies represent the first attempts to understand the living preferences of those characterized by the Dark Triad traits.

Study 1 assessed geographical preferences by pairing demographic data on population rates and density with self-reported zip codes, Study 2 assessed geographical preferences by asking participants where they lived in a forced-choice manner, and Study 3 assessed geographic preferences by asking participants where they would prefer to live, again in a forced-choice manner. Geographical preferences were correlated with two different measures of the Dark Triad traits. For instance, in Study 1, the Dark Triad traits were weakly correlated with population size/density. In Study 2, those higher in psychopathy were slightly more likely to indicate they lived in the city compared to the suburbs. And, in Study 3, those higher in the Dark Triad traits slightly preferred city living over suburbia for psychopathy and rural for narcissism, with a weak effect ($p < .10$) for Machiavellianism that resembled the effect for narcissism. Collectively, there is weak-albeit-converging evidence that that those high in the Dark Triad traits have a specific micro-niche preference for city-living.

But if those high in the Dark Triad traits have such a preference, what features of potential living conditions draw them in? Beyond looking at ideal preferences in living conditions, Study 3 also asked participants the degree several *ad hoc* features were important to them in choosing their ideal place to live. Three important patterns emerged. First, the traits were associated with selecting what could be called “fast environments”. These environments contain mating opportunities, excitement, targets for exploitation, and more “cover” than ancestral environments (e.g., it is easier to hide in a large city than a rural village). These features were likely to lead to better success for those motived to socially and sexually exploit others over evolutionary time leading to a pairing of preference and personality as evidenced in this study. That is, a psychopath living in suburbia is (1) likely to get caught faster and (2) find it harder to find targets for exploitation and will, therefore, survive and reproduce less than the psychopath living in the city. Second, those high in the Dark Triad traits did not seem motivated to seek out what might be called "serene and safe environments". These environments might be in direct conflict with their hedonistic and exploitive agendas, but may also represent primitive socioecologies that are unappealing. If the Dark Triad traits are particularly useful for city-living, they may be accompanied by a relative aversion towards ancestral living conditions to “push” them into choosing their more suitable space. And third, the Dark Triad traits appear to not want to live near their parents or family. While family may represent safety for most, those high in the Dark Triad traits may want to avoid living close to their families to not damage them too much (physically or emotionally) when they pursue their fast life strategies and families (parents in particular) might have vested interests in slowing the life history speed down of their family members (i.e., families are long-term, interdependent, and heavily invested social groups). That is, proximity to family may be a hindrance for those set on the fast life and avoiding living near them might facilitate the Dark Triad traits preferred lifestyle.

An important variable to consider when trying to understand life history strategies (Figueredo et al., 2006) and the Dark Triad traits (Jonason et al., 2017) is participant's sex. Sex differences in the Dark Triad traits were generally replicated across the three studies. Study 3, however, added information about how the sexes might differ in their preferred living conditions. In a general sense, men seemed more drawn to fast niches (e.g., mating opportunities, fast pace, heavy population) and women more towards slow niches (e.g., pleasant, near nature). While the sexes did not differ on other preferences (e.g., intellectual stimulation, excitement, friendship potential), these differences suggested that part of the selective pressures that pair persons and personality with place preferences may be sex-differentiated. In those niches that men can benefit more from than women can, men should express preferences for living in those areas to implicitly[8] maximize

[8] The word “implicit” is important here because one wants to avoid the sociobiological

their fitness. Women, unlike men, have a greater need for safety and protection given their diminutive size and lesser formidability (Geary, 2010), along with potential societal level biases protecting women at the cost of men (Baumeister, 2017). Those women with a biased preference away from city living and towards "safer" places would have fared better (i.e., made more offspring) in the evolutionary process; modern women might still live in or like cities for a variety of reasons that do not undermine an evolutionary argument.

As interesting as sex differences are, they beg the question as to what are the mechanisms that differentiate the sexes into making these choices. The contention here is that the Dark Triad traits facilitate fast life history strategies in men more than women and if niche preferences facilitate life history strategies, there should be a pairing of sex, personality, and geography. As such, mediation hypotheses were tested in line with prior research trying to understand sex differences in important life history variables (e.g., Jonason et al., 2009). The general pattern suggested that sex differences in preferences for fast niches were facilitated by being high in the Dark Triad traits in men whereas sex differences in the selection of slow niches was facilitated by low scores on the Dark Triad traits in women. If correct, this suggests men may benefit (in an evolutionary sense) from being high on these traits whereas women may benefit from being low on them. Men set on social exploitation (i.e., being high on the Dark Triad traits) in the city, will maximize their efficacy (e.g., mating opportunities) and minimize their costs (e.g., getting caught). In contrast, women set on an unexploitive—for lack of a good antonym for exploitive—course, living in environments that are also unconducive to social exploitation may better facilitate their success (i.e., safe people with safe places). When these three factors (i.e., sex, personality, and geography) do not line up properly, people will likely experience less success in their adaptive tasks and more psychosocial costs.

6. Limitations and conclusions

This study relied on two different kinds of samples, two different measures of the Dark Triad traits, and three different measures of geographic preferences, which is in accordance with recent advice for publishing in the *Journal of Personality and Social Psychology* (Cooper, 2016). Nevertheless, the study is characterized by several limitations. First, the samples can be described as W.E.I.R.D. (i.e., Western, educated, industrialized, and democratic; see Henrich, Heine, & Norenzayan, 2010). Second, all three studies relied on self-reports which behooves future research to use implicit geographical preferences (Oishi, Talhelm, & Lee, 2015). Third, people move over the course of their lives and their choices to move from one sort of location to another might be even more telling as to the nature of the relationship between personality and geographical preferences (McCann, 2015). Fourth, despite the use of two measures of the Dark Triad traits, both may not be as good as longer measures of the traits given the relative shortage of items (Maples, Lamkin, & Miller, 2014) and cannot be reduced into lower-order facets which might be useful towards understanding patterns in the Dark Triad traits in greater detail. Fifth, the studies all focused on the Dark Triad traits when there might be reason to consider other traits like spitefulness (Marcus, Zeigler-Hill, Mercer, & Norris, 2014) and sadism (Buckels, Jones, & Paulhus, 2013; but see, Bertl, Pietschnig, Tran, Stieger, & Voracek, 2017; Jonason, Zeigler-Hill, & Okan, 2017). Sixth, the evidence that confirms the Dark Triad traits are associated with a city preference was thin across all the studies. In Studies 1 and 2, the associations were all rather small in nature, which may be a methodological artifact. In Study 3, the effects were somewhat more convincing, but were still weak in magnitude. Future work might benefit from using Likert-style questions. And seventh, there is one potentially problematic assumption made in these studies. People may exploit multiple niches in the course of their lives—to get what they need from the world. Indeed, niche-switching itself may be associated with personality traits worth considering in future work. Despite these limitations, this study presents a series of studies with some methodological and sampling heterogeneity and yet continues to support the contention that the Dark Triad traits may be fast life history adaptations that allow people to exploit the city micro-niche.

These three studies represent the first attempt to document how the Dark Triad traits relate to the selection of specific environmental contexts. The main assertion was that those high in the Dark Triad traits have a correlated preference for city living given selection pressures introduced by their life history strategies and the constraints that characterize different ecologies. In addition, it was men, more than women, who preferred features of environments that track with city life such as proximity to nightlife, multiple mates, and a fast pace, and preferences in these features was facilitated by being high in the Dark Triad traits. It does seem, that if one wants to find where people high in the Dark Triad traits live, one should follow the bright lights into the big city.

(*footnote continued*)
fallacy that suggests organisms are overtly trying to maximize their fitness.

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