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What's up with anti-natalists? An observational study on the relationship between dark triad personality traits and anti-natalist views

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ABSTRACT

In the past decade, research on the dark triad of personality (Machiavellianism, narcissism, and psychopathy) has demonstrated a strong relationship to a number of socially aversive moral judgments such as sacrificial utilitarian decisions in moral dilemmas. This study widens the scope of this research program and investigates the association between dark triad personality traits and anti-natalist views, i.e., views holding that procreation is morally wrong. The results of this study indicate that the dark triad personality traits of Machiavellianism and psychopathy are strongly associated with anti-natalist views. Further, depression is found to be both standing independently in a relationship with anti-natalist views as well as functioning as a mediator in the relationships between Machiavellianism/psychopathy and anti-natalist views. This pattern was replicated in a follow-up study. These findings add to the literature on dark triad personality traits and their relationship to moral judgments, suggesting that personality and mood play a substantive part in variation in anti-natalist views in a lay population.

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Dark triad; personality; psychopathy; narcissism; Machiavellianism; depression; risk-attitudes; anti-natalism; morality; moral judgment; moral decision-making

1. Introduction

Anti-natalism is the view that procreation is morally wrong. This paper presents data on the relationship between the personality traits of the dark triad and views on anti-natalism with a focus on a lay population.¹ The results allow us to identify further situations in which lay moral judgments are strongly associated with personality traits, expanding this field of research, and providing data that is potentially relevant to both philosophical theorizing about folk morality and anti-natalism more generally, as well as to the understanding of the psychosocial determinants of folk morality

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more generally. Before we move on to the motivations of this paper, we will first outline some of the main arguments in favor of anti-natalism.

Anti-natalism encompasses a family of views that understand the moral wrongness of procreation differently; some hold that it is sometimes wrong to procreate while others hold more global views. One global anti-natalist view of interest has most famously been defended by David Benatar (1997, 2006), who claims that bringing new beings into existence is an act that is always morally wrong. Benatar's argument relies on two sub-arguments: The asymmetry argument and the quality-of-life argument. The asymmetry argument draws on the claim that the symmetry that the presence of harm is bad and the presence of a benefit good does not hold when it comes to the absence of these harms and benefits. That is, Benatar claims, the absence of harm is good (despite there being nobody to enjoy this good) while the absence of benefit is not bad (except for cases in which there would be someone for whom this absence would be a deprivation) (Benatar, 2006, p. 30). The quality-of-life argument states, roughly, that "even the best lives are not only much worse than people think but also very bad" in general (Benatar, 2006, p. 12). Benatar argues that on a number of plausible views about the quality of life (e.g. hedonism, desire fulfillment theories, or objective list theories), life is bad on all of them. The individual arguments for why this is the case would be outside the scope of this paper. Connecting the two arguments, as Magnusson points out, the "asymmetry argument relies [directly] on the quality of life argument" (Magnusson, 2019, p. 683). Together, they imply that there is a duty not to procreate, and that doing so is morally wrong.

There are several other distinct foundations for anti-natalism that do not rely on variations of this specific reasoning. For example, some argue that there is a specific moral challenge present in being brought into a condition (i.e., existence) that one had not consented to (cf. Shiffrin, 1999). On such an account, the claim is that procreation is wrong (cf. also Singh, 2012, 2018) simply because one did not have a chance to consent to it (and thus justifiably take on the burdens of life). A further alternative to the initially discussed formulation is offered by Harrison (2019), who argues that despite the view held by most people that anti-natalism is wrong (and presupposing moral particularism), procreation is still wrong because the intuitions behind their arguments face less challenges than the converse. That is, pro-natalist views are easier explained by other factors such as biological mechanisms than their anti-natalist counterparts. Recently, Benatar (2020), drawing on Peter Singer's argument on our duties to those living in extreme poverty (Singer, 1972), offers yet another avenue of argumentation for anti-natalism, though this conclusion, as they themselves point out, only concerns the permissibility of procreation in some circumstances and is as such smaller in scope than their previous global argument (Benatar,

2020). The main claim of this approach is that the wealthy ought to use their resources to help the poor and sometimes to prevent the poor from procreating while the poor sometimes have a duty not to procreate because of the badness of the lives that their children might have were they to be brought into this existence. In the same vein, Rulli (2016) suggests a middle ground which accepts the anti-natalist conclusion but avoids some of its criticism by focusing on the topic of adoption (cf. also Friedrich, 2013). On their argument, the focus is put on the duty to adopt, a conclusion that is compatible with most anti-natalist positions. Yet another different types of anti-natalist claim relies on an environmentalist argument, pointing out its potential equivalence to overconsumption (cf. MacIver, 2015; Young, 2001). There are numerous additional arguments in favor of anti-natalism, though discussing them here at length is outside the scope of this paper.^{2, 3, 4, 5}

In this paper, however, ‘anti-natalism’ will be understood to mainly rely on Benatar’s account based on the asymmetry argument. This is not to say that other approaches are uninteresting or unconvincing; rather that the focus of the study is put on one of the central arguments of one of the main proponents as opposed to a collection of all potential ways to arrive at an anti-natalist position. Moreover, some of the data gathered here may generalize to other theories of anti-natalism, though need not do so necessarily (and whether and how they do is subject to further methodological qualifications). Importantly, the focus is put on philosophical anti-natalism as all items designed to measure anti-natalism rely on one type of philosophical argument or another.

Whether or not anti-natalism is true is an important philosophical question that also has direct implications for public discourse. As Metz puts it, “anti-natalism is fascinating and important for requiring sophisticated reflection on the evaluative question of how to judge the worthwhileness of lives and on the normative one of what basic duties entail the creation of new lives” (Metz, 2012, p. 2). Whether it is true that we are harming those who we bring into existence is an issue of considerable philosophical and practical importance. This does not just extend to population ethics, but also impacts a vast number of questions in moral and political theory, particularly to those relating to the potentially long future of humanity. Not engaging with it properly risks leaving some potentially true theories unexplored and more importantly also risks imposing serious harm on a large number of future generations if something like anti-natalism is true. This makes it an exceedingly important topic to get right and one which appears to be not yet settled. It is thus imperative that questions regarding anti-natalism are investigated thoroughly from a variety of methodological points of view.

While the academic discourse on anti-natalism had initially been comparatively undersized and dismissive relative to its importance in moral theorizing (but cf. Aleksandrova-Yankulovska, 2019; Harman, 2009; Weinberg, 2016),⁶ the topic of procreative ethics more generally and the questions surrounding anti-natalism have been receiving more attention lately (cf., e.g., Bognar, 2019; Brown & Keefer, 2019; Harrison, 2019; Smyth, 2020). This initial disregard (in both scholarly attention and attitude) might have been due to the fact that the claim that procreation is wrong seems highly unintuitive to most and would further present, for a vast majority of us, a serious challenge to our very own actions; after all, we do not act as if our friend's choice to become pregnant is morally wrong. As such, it would be intrinsically interesting to understand how people think about the claims made by anti-natalism, and what best explains agreement or disagreement with them. Though perhaps often charged unfairly in a dismissive manner, it remains scientifically interesting to investigate whether the endorsement of such views stands in a relationship to particular personality traits. However, no formal research has been conducted into the relationship between anti-natalism and personality generally that could explain some aspects of this phenomenon and shed light onto some of the potential underlying mechanisms of holding anti-natalist views, which could then elucidate dynamics of public discourse around this issue.⁷

This paper offers the first empirical account of said relationship, though importantly, the focus of this paper is exclusively on a lay population and does not collect data on either professional philosophers or self-proclaimed anti-natalists. It is, furthermore, important to acknowledge that this first empirical account cannot easily offer direct insight into the truth of anti-natalism as inquired into by professional philosophers. The aim of this paper is much more modest, namely, to establish a descriptive picture in which agreement with anti-natalist arguments and statements (henceforth 'anti-natalist views') in a lay population is analyzed from the perspective of mood and personality, while offering an empirical base from which further investigations and inferences as to the truth of anti-natalism and folk morality can proceed.

Focusing on a lay population only does not mean that these findings cannot influence philosophical theorizing about the truth of anti-natalism, quite the contrary: Given the methodological restrictions, however, no straightforward conclusions can be derived from the picture presented in this paper without making a number of potentially controversial assumptions, e.g., about the epistemic value of judgments by depressed individuals or those high on dark triad personality traits. Providing this argument is outside the scope of this paper, though we believe that the data presented here might play a role in such an argument.

However, even results regarding lay views can on their own merits have important implications for philosophical theorizing. Over the past decade, there has been a considerable amount of research in experimental philosophy, linking individual differences in personality to philosophical views and intuitions. While some of these studies were indeed focusing on professional philosophers (e.g., Byrd, 2021; Holtzman, 2013; Yaden & Anderson, 2021), there has been significant work on lay populations too. For example, Feltz and Cokely (2009) found that intuitions about thought experiments were associated with personality traits. In a more recent meta-analysis of 25 studies (eight of which are unpublished), they found a modest but robust effect of the personality trait extraversion and compatibilist free will intuitions and judgments Feltz & Cokely, (2019). This paper will further continue in the tradition of identifying personality traits that stand in a relationship to philosophical views and judgments in the aim of providing a robust account of folk morality that may then be relied upon in further philosophical theorizing. Having set up the importance of anti-natalism and of this research, we now outline the main motivations for the specifics of the research design and the null hypotheses.

First, one might think that anti-natalist views would be especially high in individuals with high empathy as concern for the suffering of future generations might be associated with high empathy.⁸ However, the central motivation for this paper is the quite different claim that anti-natalist views might also be especially common in those who hold divergent moral views, primarily because anti-natalism is not a widely accepted view in the general public. A well-researched personality cluster pertaining to divergent moral views generally is the dark triad of personality, a term coined by; Paulhus and Williams (2002). It refers to a personality cluster that is constituted by the three largely distinct personality traits of Machiavellianism, narcissism, and psychopathy. In short, Machiavellianism describes characteristics of cynicism toward morality and a focus on self-advancement at the cost of others; narcissism is characterized by a “pursuit of gratification from vanity or egotistic admiration of one’s own attributes” (Muris et al., 2017, p. 184)⁹; and psychopathy encompasses antisocial behaviors and attitudes, low empathy, and a general sense of disinhibition and disregard for standard morality (Cima et al., 2010; Megías et al., 2018). Importantly, while narcissism and psychopathy both continue to be classified as personality disorders in the DSM-IV-TR (Furnham et al., 2013, p. 200), the focus of this study is on subclinical populations, i.e., samples drawn from wider society that are typically not clinically diagnosed with either narcissism or psychopathy. As such, this research focuses on, for example, ‘psychopathic tendencies’ in the general population and their relationship to anti-natalist views (again in a lay

population) as opposed to studying clinically diagnosed psychopaths' views on anti-natalism.

Past research has shown high levels of intercorrelation between these three traits. For example, a recent meta-analysis of 91 papers including 118 populations and with a total sample size of 42,359 found intercorrelations of $r = .34$ (narcissism and Machiavellianism), $r = .38$ (narcissism and psychopathy), and $r = .58$ (Machiavellianism and psychopathy) (Muris et al., 2017, p. 188). This suggests that all three traits might be understood as loading onto a more general cluster of dark personality that is associated with, among other things, lower concerns for morality (Jonason, Strosser et al., 2015). Moreover, there has been a well-documented gender difference in this literature, with men showing higher scores on dark triad scales (Jonason et al., 2017; Karandikar et al., 2019). Importantly, dark triad traits have also been shown to negatively correlate with high levels of moral development. In a twin study design, these individual differences in low levels of moral development were shown to be attributable both to genetic and nonshared environmental factors (Campbell et al., 2009; cf. also Vernon et al., 2008), a result that could not be replicated in those with high levels of moral development. To address the concern that some of these findings might be culture specific, compare Rogoza et al. (2020) for a cross-cultural analysis of the dark triad (including non-WEIRD – i.e., Western, educated, industrialized, rich, and democratic – countries).

Over the past decade, research into the relationship between dark triad personality and moral decision-making has largely focused on sacrificial utilitarian dilemmas pitting deontological and utilitarian solutions to trolley style cases against each other, as well as applications of moral foundations theory. For example, Bartels and Pizarro (2011) show that those who endorse sacrificial utilitarian solutions to a higher degree also scored higher on the dark triad personality scales (cf. also Karandikar et al., 2019), suggesting that a disregard for common-sense morality might be associated with an inclination toward utilitarian judgments. Patil (2015) suggests that this might be due to psychopathy's association with action aversion. Further, Djeriouat and Trémolière (2014) found that Harm/Care and Honesty/Humility negatively mediated the relationship between the dark triad personality traits and utilitarian judgments. Dark triad traits were also found to be associated with lower moral concern on all moral foundations on the Moral Foundations Questionnaire (Graham et al., 2013; Jonason, Strosser et al., 2015). Additional research has shown that many conservative views, e.g., on immigration, abortion, and environmentalism, as well as some liberal views, e.g., on abortion, have also been found to be correlated with dark triad personality traits across multiple studies (Arvan, 2013a, 2013b). Overall, this literature suggests that dark triad personality measures are predictive of at least some judgments relevant to some areas of morality.

This study extends this research program on the psychosocial correlates of the dark triad of personality and investigates the relationship between dark triad personality traits and endorsement of anti-natalist views. The main hypothesis of this research is that there is a relationship between dark triad personality scores and anti-natalist views. Because anti-natalist views appear so fully divergent from standard common-sense morality, investigating whether dark personality traits stand in a meaningfully strong relationship to one's agreement with anti-natalist arguments would advance our understanding of some uncommon moral views and their relationship to personality.¹⁰ As the dark triad core (Kajonius et al., 2016) has been shown to stand in a strong association to a number of moral judgments that are contrary to common-sense morality, one might *prima facie* also expect a relationship like this to be present with anti-natalist views. Given the overwhelming preponderance of pro-natalist views in the wider public, being more likely to agree with anti-natalist arguments and statements would as such fit well into a picture of the those high on dark triad traits. Further, failing to see the good in life, perhaps by reduced affective empathy¹¹ (Wai & Tiliopoulos, 2012; Pajevic et al., 2018) and a general anti-sociality (with its behavioral first- and second-order effects) may also contribute to a tendency of anti-natalist views.¹²

Null Hypothesis 1: There is no relationship between dark triad personality traits and anti-natalist views.

Anti-natalist views, due to their life-disaffirming nature might also be thought to stand in relation to depressive mood. As has recently been shown, there exists a comorbidity between dark triad personality traits and depression more generally (Gómez-Leal et al., 2019; cf. also Tokarev et al., 2017; Jonason, Baughman et al., 2015). Above and beyond this comorbidity, there are also independent reasons for why a relationship between depression and anti-natalism would be plausible and interesting. For example, it could be the case that one's agreement with and acceptance of anti-natalism (whatever form that may take for the lay person) leads one to develop a more depressed outlook on life, perhaps because of the continued and wide-spread procreation of the human race and the accompanying suffering created. Yet conversely and perhaps more plausibly, some evidence suggests that depressed individuals show a less substantial positive bias than non-depressed individuals (Moore & Fresco, 2012) and might, as such, be in fact more accurate in their evaluation of certain facts. On this line of reasoning, one might expect those higher in depression to perhaps more accurately (i.e., less over-optimistically) perceive reality and as such be more agreeable to anti-natalism under some evaluative precommitments.¹³ This study will investigate the relationship between depression and anti-natalism

(as well as the potentially mediating role that depression might play in relation to the first hypothesis) to shed some first light on this relationship.

Null Hypothesis 2: There is no relationship between depression levels and anti-natalist views.

Further, this study will also test the hypothesis that some of the relationship between dark triad personality traits and anti-natalism might be driven by a higher level of risk aversion, as affirming the anti-natalist view might be a result of strong risk-aversion (bringing people into existence is risky; after all, one cannot ensure their wellbeing to a full extent).¹⁴ As such, this study will investigate the potentially mediating role of risk attitudes in regard to the first hypothesis.

Null Hypothesis 3: Risk aversion is not a mediating factor in the relationship between dark triad personality traits and anti-natalist views.

Providing research on the relationship between anti-natalism and personality as well as depressive mood and risk aversion will further the literature on the psychosocial correlates of the dark triad personality traits. Drawing conclusions from these findings to the truth of anti-natalism is, of course, highly problematic. However, the data gathered in this study will at least illuminate the relationship between personality and anti-natalist views in a lay population, a finding that can have consequences for further philosophical theorizing and the development of a sound folk morality.

A follow-up replication study was conducted 2 months after the initial study. Its goal was to estimate the stability of the anti-natalism measure and the results more generally. That is, it aimed to analyze whether the main relationship found would replicate and whether there was a change in anti-natalist views overall. Importantly, the main study was conducted between February 27 and 28 February 2020 on a US sample. The follow-up study was conducted between 30 April 2020 and 9 May 2020 on the same sample. By this point, the United States had already recorded their first official death related to the COVID-19 pandemic on 29 February 2020, that is, just after the main study was conducted. By the time of the follow-up study, the majority of US states had entered periods of lockdown (of varying stringency) and the news cycle was fully occupied with COVID-19 related coverage. It is important to point out that the main study was not conducted with the follow-up in mind, so the timing was entirely coincidental, and no individual identifiers were collected in the main study and as such no within-subject comparisons were possible. The main pre-registered question was whether there would be a change in anti-natalist sentiment during a pandemic compared with before.

Null Hypothesis 4: There is no change in mean anti-natalist scores between the main study and the follow-up.

With the pandemic in full swing, and death numbers on everyone's mind, one might think that one's views on anti-natalism might be impacted. For example, seeing so much widespread suffering and illness might lead one to be more inclined to agree that bringing new life into existence is a morally bad thing. Specifically, one of the anti-natalism measures introduced later narrows down specifically on the bad future that prospective parents might leave for their children, a sentiment that the COVID-19 pandemic might have strengthened. Being able to potentially replicate the main relationship in question and to test whether general agreement with anti-natalist views is consistent across time allows for a more robust interpretation of the main results, especially as the anti-natalism items themselves had not been directly validated independently.

2. Methods

2.1 Participants and procedure

The final sample of this study was composed of 194 participants (59.3% male), aged 21–73 years ($M = 34.41$, $SD = 10.564$), who were paid US\$0.30 for the completion of this survey on Amazon Mechanical Turk (MTurk). In the first part of the survey, participants were presented with measures on the dark triad, depression, and risk attitudes. In the second part, they responded to a number of philosophical thought experiments on utilitarian sacrificial dilemmas and were presented with arguments in favor of anti-natalism. If they failed to provide a minimally satisfactory answer to a qualitative comprehension question in which they were asked to quickly summarize what the previous argument or statement was about, they were eliminated from the study prior to data analysis. Eighty-two respondents were excluded from analysis via this mechanism (meaning the total number of responses collected were 276, but all analyses were conducted with the 194 mentioned above unless specified explicitly).¹⁵ Ethics approval for this study was granted and the two studies were pre-registered on the Open-Science Framework.^{16,17}

2.2 Measures

Dark Triad. In order to measure the dark triad personality traits, the Short Dark Triad (SD3) version SD3.1.1 was chosen (Jones & Paulhus, 2014; for validity cf. Maples et al., 2014). SD3.1.1 presents participants with nine items for each of the three traits, Machiavellianism, narcissism, and

psychopathy. Participants were asked to rate their agreement with those statements. These include “It’s wise to keep track of information that you can use against people later”, “People see me as a natural leader”, and “I enjoy having sex with people I hardly know” and were measured on a Likert scale from 1 to 5 (1 = Strongly Disagree, 5 = Strongly Agree). After reversal of reverse coded items, scores were added together in order to arrive at the respective personality index.

Depression. In order to measure depressive mood, the Zung Self-Rating Depression Scale (SDS) was chosen (Zung, 1986; for validity cf. Biggs et al., 1978). It measures affective, psychological, and further bodily symptoms associated with depression by presenting participants with 20 self-report items (10 of which are reverse coded). Participants had to describe how often they have felt or behaved as described on a Likert scale ranging from 1 to 4 (1 = A little of the time, 4 = Most of the time). After reversing the reverse coded items, a total score was derived by addition of all item scores (resulting in a total range from 20 to 80). According to the WHO, depression is typically associated with scores over 50 on this scale (2020).

Risk Aversion. Risk attitudes were estimated by adapting the approach by Eckel and Grossman (2008). Participants were presented with the choice between five gambles, all of which consist of two equiprobable outcomes (A and B) at 50% each. The outcomes of these five gambles represent different risk attitudes over hypothetical payoffs, with gamble 1 promising 10 USD irrespective of the outcome and gamble 5 paying out 42 USD in A and demanding a payment 6 USD (i.e., a payoff of -\$6) in B. Specifically, the expected pay off increases by 2 USD with each gamble, as does the risk (defined as standard deviation of the payoff). Participants had to choose which one of those five gambles they would prefer in a hypothetical choice scenario. Mirroring the same structure, other-regarding risk attitudes were also measured by presenting participants with five similarly structured gambles over extra life years for a sick person.

Anti-Natalism. The central anti-natalism measure consisted of four arguments or statements in favor of an anti-natalist conclusion. Four different items for anti-natalism were used, ranging from summaries of arguments to applied local cases of a much more restricted scope: *Argument Anti-Natalism*, summarizing Benatar’s asymmetry argument (Benatar, 2006, p. 30), *Simple Anti-Natalism*, consisting of a shorter version of the argument, *Misanthropic Anti-Natalism*, pointing to the harm that humans are doing (to other humans and the environment/animals), as well as *Local Anti-Natalism*, expressing the sentiment that parents who think their children will have a miserable life should not procreate (cf. Cassidy, 2006; Shelby, 2016). For the specific wording of these items, see [Appendix 1–4](#). These items capture both the philosophical arguments of Benatar (*Argument* and *Simple*) as well as further statements that are shared by

a large number of anti-natalist positions (*Local* and *Misanthropic*). Participants were then asked to rate their agreement with these arguments on a Likert scale from 1 to 5 (1 = Disagree, 5 = Agree). In all individual items, higher scores indicate higher agreement with the anti-natalist point of view. To arrive at a total measure, all four individual scores were summed up. These scores are scores of agreement with the arguments and statements, and are not scores of unintuitiveness of the conclusion. Participants who could not, in their own words, replicate one of the anti-natalist items in a qualitative comprehension question were excluded.¹⁸

In order to mask the aim of the study, participants were also presented with some items drawn from Bartels and Pizarro (2011). Out of their 14 original items, 4 sacrificial dilemmas were randomly adopted. On those, participants had to decide whether they would sacrifice a person for the greater good, e.g., by pushing a man in front of a trolley. As in the original study, their answers were scored on a Likert scale ranging from -2 to 2 (-2 = No, 2 = Yes). Higher total scores indicate higher preference for the utilitarian solution.

2.3 Follow-up study methods

The final follow-up sample was composed of 99 US participants (50.5% male), aged 21–73 years ($M = 37.78$, $SD = 11.715$) drawn from the pool of participants in the main study. The main study had 276 participants, 194 of which passed the comprehension checks. As such, this supplemental part of the study followed up on those 194 by advertising the study such that it was only visible to those who had successfully completed the main study and by sending two e-mail reminders. One hundred fifteen participants completed the follow-up survey. Of those, 16 were excluded prior to analysis on the basis of the same comprehension checks. As such, 99 participants' data was analyzed in the follow-up study. The follow-up study employed the same measures as the main study. Participants were given the same survey (SD3.1.1, SDS, risk attitude measures, and anti-natalism measures). See above sections for details on both.

3. Results

While most studies in the literature consistently find men scoring higher on all three items than women, this study finds men showing only marginally significant higher scores on Machiavellianism ($t(190) = 2.021$, $p = .045$, $d = .291$) and unequivocally significant higher scores on psychopathy ($t(191) = 3.690$, $p < .001$, $d = .541$), but not on narcissism ($t(189) = 1.169$, $p = .243$, $d = .170$). However, controlling for gender did not affect the statistical significance effects reported in this paper (almost all significant p values remain significant at the same level¹⁹). The same was true for age,

i.e., controlling for age had no effect on any statistically significant effects reported in this paper either (almost all significant p values remain significant at the same level²⁰). As expected, all three dark triad items also had high internal consistency (Machiavellianism $\alpha = .886$, narcissism $\alpha = .809$, psychopathy $\alpha = .870$) and strong intercorrelations ($r(189) = .551, p < .001$ for Machiavellianism and narcissism, $r(190) = .727, p < .001$ for Machiavellianism and psychopathy, and $r(189) = .557, p < .001$ for psychopathy and narcissism) (see Table 2).

On average, participants did not agree with anti-natalist arguments and statements on three out of the four items. Only *Local Anti-Natalism* showed light agreement at $M = 3.20$ ($SD = 1.33$) (see Table 1). Table 1 displays means, standard deviations, and intercorrelations among the four anti-natalism items. As hypothesized, all versions displayed high intercorrelations, ranging from $r(194) = .351, p < .001$ between *Local Anti-Natalism* and *Misanthropic Anti-Natalism* to $r(194) = .737, p < .001$ between *Simple Anti-Natalism* and *Argument Anti-Natalism*. A reliability analysis was carried out on the four anti-natalism items, finding excellent internal consistency at $\alpha = .820$. This suggests that the total anti-natalism score appropriately captures the underlying construct across all four items.

Testing *Null Hypothesis 1*, this data allows for the clear rejection of the null hypothesis. Participants who scored higher on the dark triad personality traits (especially Machiavellianism and psychopathy) ($SD3.1.1$) showed greater inclination to anti-natalist views (Table 2). This held true for both

Table 1. Mean, standard deviations, and correlations coefficients for the four items of anti-natalism.

	Misanthropic	Simple	Argument	Local
Misanthropic	1	-	-	-
Simple	.604***	1	-	-
Argument	.572***	.737***	1	-
Local	.351***	.475***	.432***	1
<i>M</i>	2.93	2.52	2.52	3.20
<i>SD</i>	1.441	1.490	1.415	1.330

*** $p < .001$

Table 2. Mean, standard deviations, and correlations between individual differences in personality and anti-natalist views.

	Machiavellianism	Narcissism	Psychopathy	Anti-Natalism
Machiavellianism	1	-	-	-
Narcissism	.551***	1	-	-
Psychopathy	.727***	.557***	1	-
Anti-Natalism	.490***	.293***	.621***	1
Misanthropic	.444***	.304***	.492***	.790***
Simple	.456***	.321***	.590***	.881***
Argument	.425***	.275***	.590***	.855***
Local	.240***	.026	.313***	.689***
<i>M</i>	29.20	25.31	22.09	11.17
<i>SD</i>	7.824	6.981	8.223	4.578

*** $p < .001$

the aggregate anti-natalism scale, as well as all individual items except on the relationship between narcissism and *Local Anti-Natalism* (see Table 2), though the relationship between narcissism and any of the anti-natalist views was lower than compared with the other two traits across the board. Table 2 reports correlations between the dark triad personality traits and all four individual anti-natalism items as well as the total aggregate score.²¹ All dark triad traits explained a significant proportion of variance in anti-natalist views: Machiavellianism, $R^2 = .24$, $F(1, 190) = 60.04$, $p < .001$; narcissism, $R^2 = .09$, $F(1, 189) = 17.74$, $p < .001$; psychopathy, $R^2 = .39$, $F(1, 190) = 119.28$, $p < .001$, though again narcissism explained the least.

Regarding *Null Hypothesis 2*, this data similarly allows for the rejection of the null hypothesis. Participants who scored higher on the Zung depression scale (SDS) expressed higher agreement with anti-natalist views at $r(178) = .539$, $p < .001$ (see Table 3). For *Null Hypothesis 3*, this data does not allow for a rejection of the null hypothesis. Neither self-regarding nor other-regarding risk aversion showed any relationship to participants' endorsement of anti-natalist views, respectively (see Table 3).

Further, a mediation analysis of the effect of depression on the relationship between the dark triad personality traits on anti-natalist views was conducted. A non-parametric resampling procedure with 5000 bootstrap resamples was conducted. As reported before, the relationships between dark triad personality traits and agreement with anti-natalist views, ignoring the mediator, were significant (see Table 2). Sobel tests were conducted, finding that mediation

Table 3. Associations between depression, risk attitudes, and anti-natalism.

	Depression	Self-regarding risk aversion	Other-regarding risk aversion	Anti-Natalism
Depression	1	-	-	-
Self-regarding risk aversion	.035	1	-	-
Other-regarding risk aversion	.086	.313***	1	-
Anti-Natalism	.539***	.104	.114	1
<i>M</i>	40.53	2.42	2.35	11.17
<i>SD</i>	11.110	1.380	1.411	4.578

*** $p < .001$

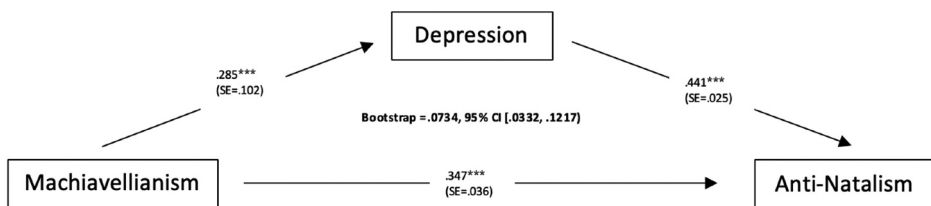


Figure 1. Indirect effect of depression on the link between Machiavellianism and anti-natalist views, *** $p < .001$.

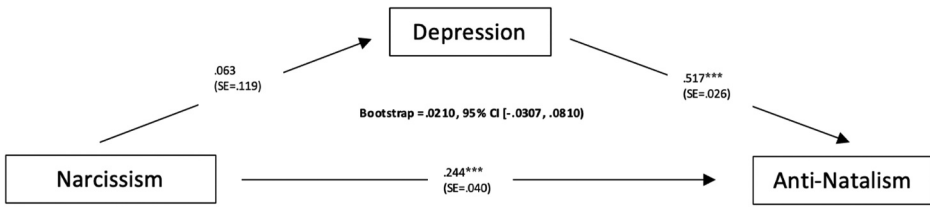


Figure 2. Indirect effect of depression on the link between narcissism and anti-natalist views, *** $p < .001$.

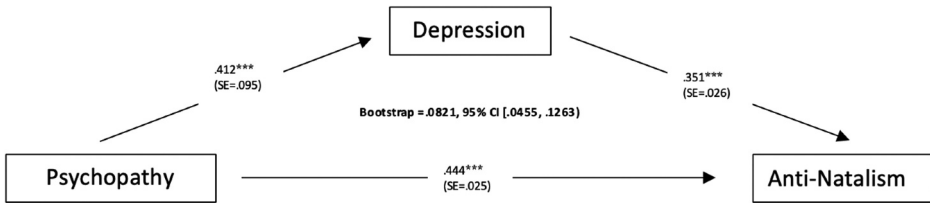


Figure 3. Indirect effect of depression on the link between psychopathy and anti-natalist views, *** $p < .001$.

effects for depression on anti-natalist views were significant for Machiavellianism ($z = 2.759, p = .005$) and psychopathy ($z = 4.129, p < .001$), but not for narcissism ($z = .529, p = .596$). See Figures 1, 2 and 3 for the full mediation models. Neither self-regarding nor other-regarding risk-attitudes had a mediating role in any relationship.²²

3.1 Follow-up study results

Total anti-natalism measures did not show a statistically significant change between the main study and the follow-up, though there does exist some heterogeneity within this aggregate (cf. Table 4).²³ The t-tests are reported under the assumption of equal variances for *Misanthropic Anti-Natalism* and *Local Anti-Natalism*. For *Simple Anti-Natalism*, *Argument Anti-Natalism*, and the aggregate measure *Anti-Natalism*, Levene’s test indicated

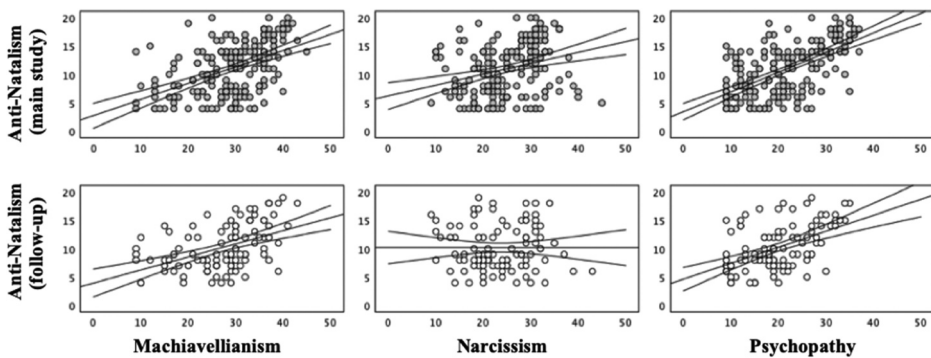
Table 4. Mean, standard deviations, and t-tests for all individual and the aggregate anti-natalism measure before and during the COVID-19 pandemic.

	Anti-Natalism	Misanthropic	Simple	Argument	Local
<i>t</i>	1.857	2.736	1.892	1.353	-.384
<i>df</i>	222	291	223	214	291
<i>p</i> (2-tailed)	.065	.007**	.060	.178	.701
<i>d</i>	.226	.344	.229	.169	.047
Lower CI	-.059	.136	-.013	-.012	-.377
Upper CI	1.985	.831	.650	.547	.254
<i>M</i> (<i>SD</i>) pre	11.17 (4.578)	2.93 (1.441)	2.52 (1.490)	2.52 (1.415)	3.20 (1.330)
<i>M</i> (<i>SD</i>) post	10.20 (3.992)	2.44 (1.409)	2.20 (1.293)	2.29 (1.288)	3.26 (1.234)

** $p < .01$

Table 5. Mean, standard deviations, and correlations between individual differences in personality and anti-natalist views in the follow-up study.

	Machiavellianism	Narcissism	Psychopathy	Anti-Natalism
Machiavellianism	1	-	-	-
Narcissism	.429***	1	-	-
Psychopathy	.690***	.434***	1	-
Anti-Natalism	.471***	-.001	.499***	1
Misanthropic	.456***	.050	.437***	.819***
Simple	.358***	-.019	.449***	.871***
Argument	.339***	-.046	.377***	.806***
Local	.275**	.009	.251**	.546***
<i>M</i>	27.12	23.65	19.75	10.20
<i>SD</i>	8.177	6.996	7.102	3.992

** $p < .01$ * $p < .001$ **Figure 4.** Scatter plots and linear model fits for dark triad personality traits (from the left: Machiavellianism, narcissism, and psychopathy) and anti-natalist views in main study (top row) and follow-up study (bottom row).

that equal variances cannot be assumed (with $F = .17389$, $p < .001$, $F = 4.049$, $p = .045$, and $F = 4.491$, $p = .035$ respectively), so the degrees of freedom were adjusted accordingly.

Participants in the follow-up study showed slightly higher Machiavellianism scores, $t(289) = 2.112$, $p = .036$, $d = .258$, and slightly lower psychopathy scores, $t(225) = 2.516$, $p = .013$, $d = .304$, with no significant differences on narcissism scores, $t(288) = 1.921$, $p = .056$, $d = .238$. The relationships between the dark triad personality traits Machiavellianism and psychopathy and anti-natalist views remained strong in the follow-up study (cf. Table 5). However, the relationship between narcissism and anti-natalism, which was present but comparably weak in the main study and dropped out of both the relationship generally and the mediation models with depression, disappeared in this replication (cf. Table 5, Figure 4). With narcissism dropping out of the picture, it is no longer the case that all dark triad traits explained a statistically significant proportion of variance in anti-natalist views: Machiavellianism, $R^2 = .22$, $F(1, 97) = 27.69$, $p < .001$; narcissism, $R^2 = .00$, $F(1, 97) = 0.00$, $p = .994$; psychopathy, $R^2 = .25$, $F(1, 97) = 32.134$, $p < .001$. As before,

controlling for gender and age did not impact the results (all p values remain at their level, i.e., all $p < .001$ remain at $p < .001$).

4. Discussion

This study aimed at empirically investigating a potential relationship of dark triad personality traits and views concerning the ethics of procreation, specifically anti-natalism. The data allow for the broad conclusion that there exists a strong relationship between endorsement of anti-natalist views and dark triad personality traits, especially for Machiavellianism ($r = .490$) and psychopathy ($r = .621$), less so for narcissism. Moreover, the follow-up study allowed for a replication of this general result, further strengthening the evidentiary basis for these findings. Further, the presence of a mediating role of depression in the relationships between Machiavellianism/psychopathy and anti-natalist views sheds further light on the findings while also making further plausible the claim that narcissism does not play a substantive role in this association. We take these findings to suggest a picture in which lay anti-natalist views stand in a significant relationship to dark triad personality traits and depressive mood.

Concerning the null hypotheses outlined earlier, for the main study, *Null Hypothesis 1* and *2* could be rejected soundly (cf. [Table 2](#); [Table 3](#)), as dark triad personality traits and depression were found to be standing in a remarkably strong positive relationship with agreement with anti-natalism while playing a mediating role in the main relationships. *Null Hypothesis 3* could not be rejected (cf. [Table 3](#)), as both self-regarding and other-regarding risk-aversion did not stand in a relationship to either the anti-natalist aggregate measure or any individual items and also played no mediating role.

Overall, these findings present evidence that variation in lay agreement with anti-natalist views that procreation is morally wrong is, at least in part, explained by individual differences in personality and depressive mood. One main finding is that Machiavellianism and psychopathy stand in a strong relationship that is robust even in the follow-up, further strengthening the evidentiary basis for this claim. Narcissism's relationship, however, both does not replicate in the follow-up and is not mediated by depressive scores, further indicating that narcissism falls outside the realm of explanatory capabilities of the picture proposed here and may be best explained by a different set of hypotheses and factors. This suggests that the picture is one of a 'dark dyad', i.e., of Machiavellianism and psychopathy, that explains a good deal of variation in anti-natalist views in a lay population respectively. This is consistent with a set of recent findings that suggest more generally that narcissism and the 'dark dyad' (i.e. Machiavellianism and psychopathy) are indeed two distinct constructs (Rogoza & Cieciuch, 2020).

The fact that narcissism only shows a weak or non-existent relationship suggests that the relevant personality features of Machiavellianism and psychopathy, for example, their tendency to low empathy and cynicism toward common-sense morality as well as reduced ability to feel pleasure (Treadway & Zald, 2011), are most closely associated with anti-natalist views and must thus play a part in the explanation as opposed to any facettes of narcissism. On this line of thinking, depression fits into this picture by drawing on depressive individuals' devaluation of life and bleak outlook on the future. In other words, the results here suggest that those scoring high on Machiavellianism and psychopathy as well as depression (which mediates the main relationship), are more likely to feel negatively about life, common moral standards, and others more generally. That is, one is more likely to agree with the anti-natalist arguments that procreation is a moral wrong because of one's own propensity to disvalue life, be it present or future.,^{24,25}

As such, the role of depression is also crucial to understanding the present data. This is because the higher one scores on the depression scale, the more likely one might be to regard one's own life as not worth living, possibly extending this sentiment and overgeneralizing to the claim that lives generally are not worth living and that bringing new lives into existence is a moral wrong because of this. Generally, however, there are two types of explanations about how the impact of depression might intersect with views about anti-natalism. First, one may refer to depressive realism, i.e., the claim that depressed individuals better perceive reality (Moore & Fresco, 2012) and are thus better equipped to judge the anti-natalist arguments. Conversely, one might also think that depressed individuals' thinking inhabits certain flaws, making them liable to underestimate the goodness and value of life. This would be consistent with a rationalization explanation: One's affect directly influences what one believes about the world, e.g., about the value of a life. The present data do not allow for a disambiguation between the depressive realist interpretation from the rationalization claim and further research is needed to shed light on this specific question.

The follow-up replication study aimed at testing whether the same pattern of results could be replicated and whether the pandemic overall influenced views on anti-natalism. *Null Hypothesis 4* could not be rejected, as the follow-up found that there was no significantly higher or lower aggregate agreement with anti-natalist arguments and statements. Both on aggregate measures and on the majority of individual measures, participants reported insignificantly different agreement. Only on the topic of *Misanthropic Anti-Natalism* did participants show a change, however their agreement with this formulation of anti-natalism was reduced (contra the expected directionality of an increase). Specifically, they reported lower agreement with the claim that because humans cause such a substantial

amount of harm to other humans, animals, and the environment, that it is wrong to procreate.

The data from the follow-up study also showed that the relationship between narcissism and anti-natalism weakened significantly, from a small to moderate effect in the main study, $r = .293$, $p < .001$, to virtually no relationship at all, $r = -.001$, $p = .994$. The relationships for Machiavellianism and psychopathy remained at moderate to strong levels. As such, this follow-up study shows that the results that Machiavellianism and psychopathy stand in a strong relationship to anti-natalism are robust. It also ought to diminish our certainty in the claim that narcissism is part of the picture in such a way that, given these data, one ought to be highly skeptical as to whether narcissism plays any role in any relationship to anti-natalism at all, which is in line with those arguing for the dark dyad and narcissism being distinct constructs (Rogoza & Cieciuch, 2020).

Overall, these findings strengthen the claim that at least some dark triad personality traits stand in remarkably strong relationships to anti-natalist views. Some potential reasons for this change in results from the main study to the follow-up is non-random attrition, in that the follow-up sample was not a random draw from the initial sample. Irrespective of the actual reason, we take this follow-up to increase the evidentiary status of the findings that Machiavellianism and psychopathy stand in a strong relationship to anti-natalist views. Recall also that narcissism already showed the weakest association, and taken together with the follow-up, one might want to explicitly exclude it from any full picture going forward. Further, given that depression played an important mediating the main relationships, the fact that the follow-up did not find an effect for narcissism is further compatible with previous research that found that comorbidities of depression and dark triad traits are typically only found with regard to Machiavellianism and psychopathy, not narcissism (Gómez-Leal et al., 2019) and again suggests that the picture is one of the dark dyad being associated with anti-natalist views. As such, the data gathered in the follow-up make the overall picture more consistent with previous findings and may thus increase the plausibility of the findings.

The main interpretative challenge of the data gathered in this paper relevant to philosophical theorizing and broad understanding of the public discourse on the topic is this: Does the observed relationship between dark triad personality traits/depression and anti-natalism give us reason to reduce or increase our credence in anti-natalism? For one, one might think that higher psychopathy scores and the presence of (mild) depression might give one reason to doubt the judgments about anti-natalism made by the lay population. After all, is it rational to rely on the judgments of individuals whose personality profile differs substantially from the norm and who are more depressed than the mean person? Specifically, the

Machiavellian (but also the psychopathic) personality trait is often associated with emotional detachment in those who also suffer from depression (Demenescu et al., 2010) as well as an inability to feel pleasure in some contexts (Gómez-Leal et al., 2019, p. 10; Cairncross et al., 2013). This would give one reason to believe that the lay evaluation of the quality-of-life argument central to Benatar's formulation of anti-natalism (2006) might be subject to individual variation if these come with emotional detachment and the inability to feel pleasure. After all, emotional attachment and the ability to feel pleasure are central to our evaluation of life as good and as such tie directly into Benatar's quality of life argument.²⁶

Conversely, one might also think that depression and its hypothesized more realistic outlook on life and the disregard for common-sense morality present in dark triad personality traits might lead to the reverse conclusion, i.e., that because of the presence of this relationship, one ought to have higher credence in the truth of anti-natalism.²⁷ However, the evidence that depression does indeed lead to a more realistic outlook on life is relatively restricted in methodological scope²⁸ and generally shows relatively small effect sizes (Moore & Fresco, 2012, p. 505).²⁹ Moreover, there is the additional challenge of evaluating a realist effect on purely evaluative topics such as anti-natalism. Given that no objective baseline can be established here (under plausible assumptions), we claim that one ought not be overly confident in the line of depressive realist argumentation with regard to anti-natalism and depressive mood.

For the purposes of this paper, we will not decisively argue one way or another. This is because the data presented here are the first in this line of research and can only explain a part of the picture. Further, arguing either way presupposes assuming a number of propositions that we are not prepared or able to make in a paper with this scope, eg., whether anti-natalist views are the type of views that depressed individuals or those high on dark triad personality traits are especially well or especially poorly equipped to judge. However, given the data obtained and the background literature referred to above, one might be more inclined to favor the former interpretative claim, i.e., that those high on dark triad personality traits and depression are less well-equipped to judge the truth of arguments about anti-natalism. In order to confidently answer those questions as well as further interpretative challenges, e.g., concerning the role of empathy in this relationship, however, more research has to be conducted. Specifically, further research should include a general expansion of the present data base on the psychosocial correlates of anti-natalist views, as well as a scientific analysis of expert populations such as professional philosophers. However, the data present here may be taken as indicative of moral reasoning in public discourse on anti-natalism as it does explain variations in lay views on anti-natalism.

Overall, we take the main philosophical value of these studies to be that they add to the literature on the relationship between personality traits and moral judgments as well as philosophical intuitions more broadly. It has been a goal of experimental philosophy generally to establish an empirically informed picture of folk morality, and the present data directly add to this project. In the same way that, for example, research on the role of culture, demographics, and reflection on lay philosophical judgments generally has contributed to the philosophical enterprise of identifying some of the sources and mechanisms which may drive certain judgments, this may also hold for questions relating to anti-natalism. We draw the tentative conclusions that the data present here, coupled with additional novel studies on additional populations, might go some way to provide a philosophically interesting picture of anti-natalist views that can then lead to an increase or reduction of our credence in anti-natalism. As outlined before, we believe that due to the high importance of figuring out whether anti-natalism is true or not, continuing this research (either by conducting further studies or by expanding the arguments relating to what we ought to draw from the data collected) is incredibly important under the possibility of humanity's long potential future and the resultant significant moral risk.

4.1 Limitations

This study relied exclusively on an online sample of US residents drawn from MTurk. As such, cross-cultural conclusions should not be drawn lightly and any associations found here may be the artifact of cultural-linguistic circumstances. Moreover, the consistently strong intercorrelations between anti-natalism and dark dyad personality traits might also point toward the fact that both scales measure a similar underlying factor, such as a disaffirmation of life. However, this is both a potential problem and a possible upside. On the one hand, this might mean that the finding does not properly represent the relationship between two independent concepts, but rather measures closeness of related concepts. On the other hand, though, because anti-natalist views have not yet been associated with dark triad traits, even if this was true, the findings presented here would still represent novel empirical insight into the study of personality and folk moral judgment and may directly lead to further research projects.

The main limitation of the follow-up is nonrandom attrition. As this follow-up study was conducted during the COVID-19 pandemic, it seems plausible that the follow-up sample was not a sample randomly drawn from the previous population, but rather that the attrition rate might be connected to the experiences during the pandemic. For example, those hardest hit by the pandemic might not have had the time and energy to participate in an online

study. As such, the results of the follow-up concerning the impact of the pandemic ought to be taken into account with a certain level of caution, though the purely replicatory function of the follow-up may be immune from this limitation to a certain degree. Further, because the follow-up was not planned at the time of the first study, no individual identifiers were collected that would have enabled proper within-subject analyses between the main study and the follow-up, further weakening the evidentiary status of the follow-up.

5. Conclusion

This study provided novel research into the relationship of anti-natalist views of a lay population and dark triad personality traits. The data established a strong association between the two, especially between the dark dyad traits of Machiavellianism/psychopathy and anti-natalism. Further, the mediating role of depression in the relationships between Machiavellianism and psychopathy (but not narcissism) and anti-natalist views strengthened the picture that folk anti-natalist views are partly explained by individual differences in personality and depressive mood. Overall, the results do not lend themselves to a single interpretative story as to the truth of anti-natalism. However, the impact of personality and mood on moral judgments raises a number of questions for further research both connected to anti-natalism and moral judgments more generally. For example, what other personality features can also explain variation in endorsement of anti-natalist views, how does empathy play into any fuller account of lay anti-natalist views, how many potential explanatory pathways there are, and how do these results generalize to lay judgments of moral arguments overall and to the judgments of professional philosopher populations. We hope that future research will build upon this first empirical account and expand this research.

Notes

1. For helpful comments and suggestions, we thank Theron Pummer, Ben Grodeck, Simon Graf, Lara Jost, Raimund Pils, Ravi Thakral, Tomi Francis, Johannes Wagner, Eric Neumann, and Philipp Berghofer.
2. Arguing from both within and outside the analytic tradition, Cabrera (2018) considers the “primary ethical question” (Cabrera, 2018, pp. 118, 118), namely that of procreation. They claim that procreation is an action for the good of the parents and not the child that gets thrown into an existence that, based on their moral impediment thesis, is necessarily structured such that at least the interests and welfare of someone will have to be harmed (Cabrera, 2018, pp. 60–61, 60–61). They conclude that because of this, and because procreation violates the ‘no harm demand’ as well as the ‘do not manipulate’ principles, both *prima facie* plausible principles of ethics, procreation is morally unjustified.

3. From a feminist perspective, Overall (2012) claims that the burden of proof ought to be on those who choose to have children, while acknowledging the outsized impact that this choice has on women.
4. For an argument similar to that of Benatar (2020), see Rachels (2014), who similarly focuses on improving the lives of those already alive. For an extension of this argument to the topic of shelter (and the lack thereof), see Friedrich (2013).
5. For an early formulation of some version of anti-natalism in Mill's *On Liberty*, consider the following passage: "It still remains unrecognized, that to bring a child into existence without a fair prospect of being able, not only to provide food for its body, but instruction and training for its mind, is a moral crime, both against the unfortunate offspring and against society" (Mill, 1892, pp. 62, 62).
6. For example, Brown (2011) titles their critique of Benatar's 'Better Never to Have Been' (Benatar, 2006) cynically 'Better Never to Have Been Believed' (Brown, 2011).
7. Though note that it may be the case that those that score high on some personality traits are more likely to hold anti-natalist views because of their personality, or that their independently reached anti-natalist views impact their personality.
8. While this is a plausible and interesting hypothesis, it will not be tested directly in this paper. The results presented here only provide indirect evidence as those higher on dark triad traits are typically lower on empathy, though as this was not the aim of this study, no direct conclusions as to this hypothesis ought to be drawn.
9. Further to this definition of (grandiose) narcissism, there also exists the vulnerable type. In all further mentions of narcissism, I intend to refer to both of them, even though the examples given might only properly belong to one or the other.
10. Especially if this relationship is, at least in part, genetically mediated as has been suggested (cf. Campbell et al., 2009).
11. For cognitive empathy, only Machiavellianism predicts it negatively and narcissism predicts it positively (cf. Pajevic et al., 2018).
12. It is worth nothing, however, that the further hypothesis that increased empathy ought to stand in a positive relation to agreement with anti-natalist views is plausible as well (as high empathy might make the suffering and loss of life even more protruding). This question will not be answered in the study at hand, though it may provide valuable ground for further scientific inquiry.
13. This line of interpretation, however, faces the challenge of presupposing that reality is indeed worse than commonly perceived. Further, depressed individuals have been found to be especially likely to recall evaluative scenarios as more negative than they actually were (cf. Gotlib, 1983; cf. also Burt et al., 1995), though these examples cannot be easily generalized to anti-natalism due to the lack of an objective baseline. For additional research on how those high on cynicism do on similar tasks, cf. Stavrova and Ehlebracht (2019).
14. See Weinberg (2016) for an account alongside this line of thinking.
15. A higher sample size would have been beneficial for research into a relatively unexplored domain, making the high exclusions especially unfortunate. In the results section, we also report the main findings without any exclusions.
16. UTREC approval code: SA14775.
17. OSF preregistration: <https://osf.io/pj5wt/>.
18. Though even a comprehension question cannot fully assure that all participants judged the merit of the arguments as opposed to merely the (un-) intuitiveness of the conclusion, we take this to go a long way toward achieving that.

19. Exception: The relationship between self-regarding risk aversion and other-regarding risk aversion, once controlled for gender, decreases from $r(178) = .313, p < .001$ to $r(178) = .253, p = .001$.
20. Exceptions: The relationship between Machiavellianism and local anti-natalism, once controlled for age, decreases from $r(192) = .240, p < .001$ to $r(192) = .165, p = .030$. Further, the relationship between psychopathy and local anti-natalism also decreased from $r(190) = .313, p < .001$ to $r(190) = .213, p = .005$.
21. If there is any concern about the tentatively high exclusion rate, we re-ran the analyses without any exclusions, replicating the effects reported. The anti-natalist composite measure stood in a strong relationship to Machiavellianism scores, $r(272) = .504, p < .001$, narcissism, scores $r(269) = .470, p < .001$, and psychopathy scores, $r(270) = .666, p < .001$.
22. Lastly, this study also replicated the effect reported by Bartels and Pizarro (2011) that dark triad personality traits predict endorsement of sacrificial utilitarian solutions in moral dilemmas. All three dark triad personality traits showed an association with utilitarian choices, with narcissism ($r(190) = .180, p = .013$) showing the weakest, and Machiavellianism ($r(191) = .402, p < .001$) and psychopathy ($r(191) = .469, p < .001$) both showing stronger associations. Moreover, the data also reveal a moderate association between an inclination toward sacrificial dilemma solutions and agreement with anti-natalist views ($r(193) = .396, p < .001$).
23. As the alpha level of significance was pre-registered at 5%, all p values above 0.05 are treated as unequivocally non-significant, including those at .060 and .065.
24. An important further point in favor of this line of argument is that narcissism stands in a much weaker (main study) or non-existent (follow-up study) relationship to anti-natalist views. If the above explanation does not suffice, this is perhaps best explained by the possibility that those higher on narcissism might be more likely to read the anti-natalism items as about them specifically as opposed to claims about the general moral permissibility of procreation.
25. Importantly, this is in line with previous findings on the comorbidity of depression and dark triad personality traits which found a strong and unambiguous relationship of depression only with Machiavellianism and psychopathy, not narcissism, (Gómez-Leal et al., 2019).
26. Generally, there is also the rationalization approach that differs slightly from the potential interpretations discussed above. On this view, mood and personality is prior such that individuals with a certain type of mood (e.g. depression) or personality construe beliefs that fit the former. For example, if one is suffering from depression, one might be inclined to believe propositions that fit this mood, i.e. that life is not worth living and that one should not bring further life into this world. The data presented here do now allow for a verdict on this view one way or another.
27. Further, there is the additional methodological worry that certain type of persons may interpret the arguments and statements differently. For example, a serial killer like Richard Ramirez might claim that life is suffering, but that because of this everything is permitted. However, such a person might also agree with the anti-natalist arguments presented in this study, thus complicating the interpretation of the data. Yet, we claim that individual variation in the reasons for agreeing with anti-natalist arguments is not *prima facie* problematic, as all analyses conducted here, and all effects found are of aggregates. Given the very strong relationships found, and the assumed high heterogeneity in participants (along many dimensions), we claim that the fact that some individuals might have differing reasons for agreeing or disagreeing

with anti-natalist arguments is not especially troubling. We thank an anonymous referee for pressing this point.

28. For example, a large number of studies purporting to show this effect rely on contingency tasks, in which participants' judgment of a mechanism between a light and a button are shown to be less prone to biases found in non-depressed individuals (Alloy et al., 1985). Whether and how this generalizes to issues of relevance here remains an open question.
29. However, some research has suggested that depressive realism is an effect largely found in mildly depressed individuals (cf. Dennard & Hokanson, 1986; Loewenstein & Hokanson, 1986). Given the fact that the participants in this study only exhibited mild depression, this may give further counteracting weight to this line of reasoning.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Notes on contributor

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Appendix Anti-Natalism items

Appendix 1. Misanthropic Anti-Natalism

Humans cause so much harm - to other humans, non-human animals, and the environment - that it is wrong to procreate.

Do you agree with this statement?

	Disagree	Largely disagree	Neither agree nor disagree	Largely agree	Agree
Please rate your agreement or disagreement with this statement on this scale.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 2. Simple Anti-Natalism

It is better not to exist than to exist, because only in existence can there be pain and suffering. If one does not exist, one cannot suffer.

As such, it is wrong to procreate.

Do you agree with this statement?

	Disagree	Largely agree	Neither agree nor disagree	Largely agree	Agree
Please rate your agreement or disagreement with this statement on this scale.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 3. Argument Anti-Natalism

There is a crucial asymmetry between the good and the bad things, such as pleasure and pain:

- 1) The presence of pain is bad.
- 2) The presence of pleasure is good.
- 3) The absence of pain is good, even if that good is not enjoyed by anyone.
- 4) The absence of pleasure is not bad unless there is somebody for whom this absence is a deprivation.

Coming into existence generates both good and bad experiences, pain and pleasure, whereas not coming into existence entails neither pain nor pleasure. The absence of pain is good, the absence of pleasure is not bad.

This is why it is always worse to be than not to be. As such, it is wrong to bring people into existence.

Do you agree with this statement?

	Disagree	Largely disagree	Neither agree nor disagree	Largely agree	Agree
Please rate your agreement or disagreement with this statement on this scale.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 4. Local Anti-Natalism

Prospective parents who believe that their child will have a miserable life should not procreate.

Do you agree with this statement?

	Disagree	Largely disagree	Neither agree nor disagree	Largely agree	Agree
Please rate your agreement or disagreement with this statement on this scale.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>