

Running head: HELPING PROMOTE WELL-BEING

1

Does Helping Promote Well-Being in At-Risk Youth and Ex-Offender Samples?

Katherine B. Hannibal Lara B. Akin Kevin S. Douglas Jodi L. Viljoen  
Simon Fraser University

*Journal of Experimental Social Psychology*

DOI: <https://doi.org/10.1016/j.jesp.2018.11.001>

© 2019. This manuscript version is made available under the CC-BY-NC-ND 4.0  
license <http://creativecommons.org/licenses/by-nc-nd/4.0/>

Author Note:

Katherine B. Hannibal, Lara B. Aknin, Kevin S. Douglas, and Jodi L. Viljoen,  
Department of Psychology, Simon Fraser University.

This research was supported by funding from the Canadian Institute for Advanced Research (CIFAR) and the Social Sciences and Humanities Research Council of Canada awarded to Lara B. Aknin.

Correspondence concerning this article should be addressed to Lara B. Aknin,  
Department of Psychology, Simon Fraser University, Burnaby, BC V5A 1S6. Contact:  
laknin@sfu.ca

### Abstract

Numerous theories attempt to explain humans' extraordinary prosociality, but predictions are rarely tested among antisocial individuals, whose dampened concern for others offers a particularly strong test of generalizability for prosocial action. To build upon past research demonstrating the emotional benefits of prosociality among non-offending populations and broaden our understanding of how far this relationship may extend, we examined whether the emotional benefits of prosocial spending are detectable in samples of delinquent youth and recent criminal offenders reporting elevated antisocial tendencies and psychopathic personality features. Findings reveal that, controlling for baseline happiness, ex-offenders ( $N = 501$ ) report greater positive affect after recalling a time they spent money on others than after recalling a time they spent money on themselves. Similarly, delinquent youth ( $N = 64$ ) and ex-offenders ( $N = 777$ ) randomly assigned to purchase an item for a needy child reported greater positive affect than those who purchased an item for themselves. Finally, a large pre-registered replication ( $N = 1,295$ ) suggests the immediate emotional benefits of prosocial spending are detectable among ex-offenders when controlling for baseline happiness. Together, these findings demonstrate the emotional rewards of recalled and immediate acts of giving in a new and theoretically relevant population.

*Keywords:* Helping; prosocial behavior; positive affect; well-being; prosocial spending

### Does Helping Promote Well-Being in At-Risk Youth and Ex-Offender Samples?

Humans are considered one of the most prosocial species on the planet and recent research suggests that most people feel good after helping others (Aknin et al., 2013). Yet, examples of selfish and antisocial behavior abound. People frequently hurt others by lying, stealing, and cheating – often to promote self-interest. In addition, a substantial portion of extreme offenses, such as rape and assault, are committed by individuals reporting elevated levels of antisocial and psychopathic features (Hemphill, Templeman, Wong & Hare, 1998). While antisocial actors may be less likely to electively engage in generous action, is it possible that they still reap hedonic benefits from giving? The present investigation explores this question by examining the emotional impact of prosocial behavior in two relevant populations – recent criminal offenders and delinquent youth reporting elevated antisocial tendencies.

Several lines of evidence suggest that antisocially inclined individuals, like ex-offenders, may not experience the warm glow of giving. By definition, these individuals have committed violent or otherwise antisocial crimes that have caused physical, emotional, or psychological pain to others. Antisocial features are commonly associated with increased selfishness, narcissism, impulsivity, and disregard for others (Hastings, Zahn-Waxler, Robinson, Usher & Bridges, 2000; Lynam, 2011), which may be why individuals displaying these tendencies are more likely to engage in harmful and morally reprehensible action than the general population. Given that many forms of prosociality require personal cost and are motivated by care for others (Eisenberg & Miller, 1987), individuals with a criminal history reporting elevated antisocial or psychopathic personality features may experience dampened emotional rewards or even *emotional costs* from prosocial action. Indeed, to the extent that reduced empathy and prosocial emotions are experienced among individuals displaying elevated antisocial and psychopathic tendencies – features often detected in this population and utilized for assessment (APA, 2013; Dadds et al., 2009) – it is possible that prosocial behavior could lead to lower levels of well-being among this target population, especially in comparison to behavior that provides personal gain and may fulfill selfish drives. This possibility is supported by recent correlational evidence indicating that the emotional rewards of generous spending are moderated by self-transcendent values (concern for people or entities outside oneself) among non-offending populations; only individuals reporting higher self-transcendent values reported happiness gains from spending money on others (Hill & Howell, 2014).

Meanwhile, recent research also suggests that the emotional benefits of generosity may represent a “psychological universal” or feature detectable in most humans, albeit to differing degrees, around the globe (Aknin et al., 2013; Norenzayan & Heine, 2005). Prosocial behavior emerges early in life (Brownell, 2013), activates pleasure centers of the brain (e.g., Harbaugh, Mayr & Burghart, 2007), and can be learned at speeds akin to other rewarding activities, such as finding food rewards (Bartal, Decety & Mason, 2011). Volunteering and prosocial spending (using one’s financial resources for others) have been linked with greater well-being in numerous countries around the world (e.g., Helliwell, Huang & Wang, 2017; Meier & Stutzer, 2008). Finally, experimental evidence indicates that children and adults from rich and poor countries express greater happiness after using their resources (money or food) to benefit others than after using resources to help themselves (Aknin et al., 2013; Aknin, Broesch, Hamlin & Van de Vondervoort, 2015; Geenan Hohelüchter, Langholf, & Walther, 2014). Indeed, a recent meta-

analysis of 27 experimental studies suggests that various forms of helping behaviour have a causal impact on happiness (Curry et al., 2018). Together, these findings suggest that the hedonic rewards of prosocial behavior are widespread and raise the possibility that they may also be detectable within unlikely samples, such as among ex-offenders and at-risk or delinquent youth expressing elevated antisocial personality features.

Importantly, however, the emotional rewards of prosociality may not be comparable in size across samples. Indeed, Norenzayan and Heine's (2005) discussion of psychological universals acknowledges various levels of commonality, and identifies one type – called “functional universals” – that are present in most humans but vary in strength or degree. For example, existing research demonstrates that the within-country association between income and happiness fluctuates with a country's average income (e.g., Deaton, 2008; Diener & Biswas-Diener, 2002). Along similar lines, the emotional rewards of prosocial behavior may vary as a function of the actor's antisocial personality traits. As indicated in Table 1, past experiments probing the well-being benefits of generous as opposed to self directed spending in non-offending student and community samples typically reveal effect sizes ranging from .19 to .93. Might the well-being benefits of prosocial spending be detectable among antisocial populations?

-- Insert Table 1 about here --

### **Present Research**

The present work seeks to examine whether the emotional benefits of prosociality are detectable (even if small) among antisocial individuals who place reduced concern on the welfare of others. In doing so we provide what Popper (1963) termed a “severe test” of the hypothesis that prosocial behaviour is a functional universal and leads to emotional rewards in most humans by investigating whether giving results in happiness among a highly improbable population: antisocial actors.

To explore this question, we adapted previous paradigms used to compare the emotional consequences of prosocial and personally beneficial behavior with felony-level ex-offenders (Experiments 1, 3-4) and high-risk or delinquent youth (Experiment 2). Participants were randomly assigned to either recall (Experiment 1) or engage in (Experiments 2-4) an act of generous or personal spending and then report their well-being. Consistent with past research (Aknin et al., 2013; Dunn et al., 2008), we predicted that generous action would lead to greater positive emotion than personal gain when controlling for baseline happiness. Respondents also completed measures of antisocial and psychopathic personality traits, allowing us to confirm that the samples reported elevated levels of antisocial and psychopathic personality features in comparison to community samples. We report all conditions/manipulations, measures, and exclusions for all experiments. Materials, data, and the pre-registration for Experiment 4 can be found at <https://osf.io/x3ypv/>.

### **Experiment 1**

#### **Methods**

**Participants.** 514 ex-offenders ( $M_{\text{age}} = 31.24$ ,  $SD = 8.06$ , .95CI [30.05-31.90]; 67.2% men) were recruited on Amazon's Mechanical Turk (MTurk). Sample size was determined before any data analysis. Participants identified as Caucasian (66.5%), Asian (11.4%), Black/African American (9.6%), Hispanic/Latino (9.0%), and American Indian/Alaskan Native (1.6%), Other (1.6%). An additional 2 participants (0.4%) did not respond.

While MTurk has its limitations (e.g., Poalacci & Chandler, 2014), we intentionally utilized this platform to reach a large number of ex-offenders. Given that individuals with severe criminal histories as well and antisocial traits may have trouble finding traditional work, we reasoned that individuals would turn to alternative options, like MTurk, that require no background check. This sample size was determined a priori using G\*power to allow detection of a small-to-medium effect ( $d = .25$ ) with alpha at .05 and 80% power.

**Qualification and criminal history check.** Participants indicated whether they had committed a felony level offense or engaged in extensive criminal/illegal activity within the past 5 years; only those reporting a severe criminal history qualified (see Table 2 for criminal behavior categories and offense frequencies). Consistent with forensic psychology and criminology methodology (Thornberry & Krohn, 2000), self-reported criminal behavior was used because we did not have access to federal or state incarceration records. This strategy is advantageous because self-report data are more inclusive than federal or state records, which only reflect crimes known to the police and drastically underestimate actual offense rates (Coleman & Moynihan, 1996). Self-report measures also demonstrate favourable measurement properties (e.g. high reliability; Joliffe et al., 2003) and are robust to misreporting (Sweeten, 2012).

-- Insert Table 2 about here --

**Criminal history check.** Recognizing that self-reported criminal history may raise concerns of false responding, we implemented a procedure to identify those that may be lying. Specifically, we required that participants indicate their criminal activity at both the beginning and end of the survey. In light of the long experimental procedure (100+ questions, taking >30 minutes to complete) we reasoned that participants who may have lied about their criminal history at the start of the survey would not be able to accurately report the same activity at the end. Therefore, we compared criminal activities listed at both time points to confirm matched reports. As noted in Table 3, responses from thirteen individuals did not match and were excluded from analyses, leaving the final sample of 501 participants ( $M_{\text{age}} = 31.21$ ,  $SD = 8.08$ , .95CI [30.50-31.90]; 67.3% men).

-- Insert Table 3 about here --

## Procedure

Participants completed a state ("Do you feel happy right now? 1-*not at all*, 5-*extremely*) and trait measure of happiness ("In general, I consider myself..." 1- *a very happy person*, 7-*a very unhappy person*; Lyubomirsky & Lepper, 1999). Consistent with past research (Aknin et al., 2013), these items were significantly correlated,  $r(499) = .36$ ,  $p < .001$ , and averaged to create a

measure of baseline happiness. Additional items assessing state alertness, tiredness, sadness, and hunger were collected as well. For transparency, analyses including the only other positive affect term (alertness) in the baseline composite can be found in the SI for all studies (results do not change when alertness is added to the baseline composite); all other items were included as distractors to disguise a focus on well-being.

Participants were randomly assigned to recall a time when they spent approximately \$20 dollars on either themselves (*personal spending*) or someone else (*prosocial spending*). Specifically, participants saw one of two randomly assigned prompts asking them to “please take the next two minutes to think back to and describe in as much detail as possible the last time you spent approximately \$20 on yourself [someone else].” Participants then reported their well-being using the Positive and Negative Affect Schedule including additional items “happy” and “sad” (PANAS; Watson, Clark & Tellegen, 1988; PA:  $\alpha = .92$ ; NA:  $\alpha = .93$ ).

We calculated post-recall positive affect by averaging the 10 original positive affect (PA) items on the Positive and Negative Affect Schedule (PANAS; Watson, et al., 1988) along with ratings of “happy”. We chose to do so in the present work, as done in past research (see Aknin, Dunn, Sandstrom & Norton, 2013; Aknin, Dunn, Whillans, Grant & Norton, 2013; Aknin, Mayraz & Helliwell, 2016; Whillans, Aknin, Ross, Chen & Chen, *under review*) because, while the PA subscale of the PANAS captures many elements of one’s current positive state, we reasoned that self-ratings of one’s happiness were extremely relevant to the question at hand and highly consistent. Supporting this claim, evaluations of “happy” were highly and significantly correlated with the average of the 10 original PA items,  $r(499) = .724, p < .001$ . Similarly, we averaged the 10 original negative affect (NA) items on the PANAS with ratings of the word “sad” (analyses examining negative affect are reported in the SI). Evaluations of “sad” were highly and significantly correlated with the average of the 10 original NA items,  $r(499) = .787, p < .001$ . Participants also completed the Subjective Happiness Scale (SHS; Lyubomirsky & Lepper, 1999;  $\alpha = .86$ ) and the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen & Griffin, 1985;  $\alpha = .91$ ).

To assess antisocial and psychopathic personality features, participants then completed the Triarchic Psychopathy Measure (TriPM; Patrick, 2010;  $\alpha = .91$ ), the Comprehensive Assessment of Psychopathic Personality (CAPP; Cooke, Hart, Logan & Michie, 2004;  $\alpha = .95$ ), and the Psychological Entitlement Scale (PES; Campbell, Bonacci, Shelton, Exline & Bushman, 2004;  $\alpha = .76$ ). Participants also completed the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1984;  $\alpha = .83$ ) to capture impression management and self-deceptive enhancement (see OSF for study materials and data; see SI for analyses demonstrating a small but significant correlation between psychological entitlement and criminal behaviour).

**Coding.** To gain insight into how ex-offenders spend money, each recollection was coded along six dimensions: (i) beneficiary (who was the target of spending? e.g. self, friend, etc.; each target coded as 1= yes, or 0 = no), and (ii) content (what was purchased? food, clothing, etc.; each item coded as 1 = present, or 0 = absent). In addition, coders rated the extent to which the purchase appeared to be motivated by (iii) need vs. want, (iv) obligation vs. volition, and (v) selfishness vs. generosity. Finally, (vi) coders noted whether the spending experience appeared to make participants feel a particular emotion, as evidenced by spontaneous

mention of happiness, general positivity, anger, etc. (each emotion coded as 1= yes, or 0 = no). Coders were not informed of participant condition, participant well-being, and study hypotheses; coders displayed moderate to high agreement for all dimensions (ICCs range: .67-.99, average = .88; Table 4).

-- Insert Table 4 about here --

## Results

**Criminal activity and antisocial personality.** Criminal activity reports suggest that we recruited an antisocial population; 43.9% of participants reported committing a serious violent offense and several committed crimes of the highest severity (e.g., rape, murder). Moreover, because non-clinical measures of psychopathy do not have cut-off scores to classify respondents, we compared the responses provided by the present sample to base rates observed in the general population; doing so provides a meaningful benchmark, probing whether the present sample reported similar or elevated levels of psychopathic tendencies. As a whole, participants reported significantly higher scores on the TriPM and two relevant sub-scales (meanness and disinhibition;  $M_{total} = 133.30$ ,  $SD = 22.96$ , .95CI [131.00-135.00];  $M_{Meanness} = 38.28$ ,  $SD = 11.89$ , .95CI [37.20-39.30];  $M_{Disinhibition} = 45.85$ ,  $SD = 12.16$ , .95CI [44.80-46.90]) than community samples (Drislane, Patrick, & Arsal, 2014:  $M_{total} = 120.10$ ,  $SD = 15.67$ , .95CI [119.00-121.00]  $M_{Meanness} = 32.19$ ,  $SD = 7.87$ , .95CI [31.60-32.80]  $M_{Disinhibition} = 35.13$ ,  $SD = 7.44$ , .95CI [34.50-35.70]; TriPM total,  $t(500) = 12.873$ ,  $p < .001$ ; Meanness,  $t(500) = 11.459$ ,  $p < .001$ , Disinhibition,  $t(500) = 19.730$ ,  $p < .001$ ; see Table 2). These findings suggest that we successfully recruited individuals with elevated antisocial and psychopathic personality features as compared to the general public.

**Manipulation check.** Independent samples t-tests comparing the beneficiary identified in spending recollections acted as a manipulation check, confirming that participants recalled spending memories consistent with their assigned prompt. Participants in prosocial spending condition were more likely to indicate that the beneficiary was a friend, family member, romantic partner or charity. Participants in the personal spending condition were more likely to indicate that they were the beneficiary of their purchase (see Table 4).

**Emotional consequences of recalled personal or prosocial spending.** We compared average post-recollection positive affect provided by participants in the two recollection conditions with an independent samples t-test. A sensitivity power analysis conducted through G\*Power 3 suggested we had 80% power to detect an effect of  $d = .22$  or similar. Results revealed a marginal difference; participants in the prosocial spending condition reported slightly higher positive affect ( $M = 3.19$ ,  $SD = .91$ , .95CI [3.08-3.30]) than participants in the personal spending condition ( $M = 3.05$ ,  $SD = .91$ , .95CI [2.94-3.16]),  $t(498) = 1.711$ ,  $p = .088$ , .95CI [-.021, .299],  $d = .16$  (Figure 1). When baseline happiness was added as a covariate to control for individual differences in well-being, the main effect of condition on post-recall positive affect was significant,  $F(1,497) = 4.104$ ,  $p = .043$ ,  $\eta^2 = .01$ . Importantly, the main effect of condition remained significant when controlling for impression management and self-deceptive enhancement,  $F(1,493) = 3.914$ ,  $p = .048$ , suggesting that positive impression and ego enhancement were unlikely to account for the observed effect. Consistent with past research



(Aknin et al., 2013), recalling a prosocial act did not predict higher trait happiness as captured on the post-manipulation measure of the SHS,  $t(498) = .072, p = .943$ , or life satisfaction as captured on the SWLS,  $t(499) = .363, p = .716$ . However, bootstrap analyses suggested an indirect effect of condition via positive affect on trait happiness (unstandardized indirect effect = .02, 95% CI [ $<.01, .05$ ]) and life satisfaction (unstandardized indirect effect = .03, 95% CI [ $<.01, .06$ ]) when controlling for baseline happiness.

-- Insert Figure 1 about here --

Coder ratings revealed that purchase content was similar across conditions with a few exceptions (e.g., experiences more common in prosocial condition). Given past research demonstrating that experiential purchases lead to greater happiness than material purchases (Van Boven & Gilovich, 2003), we added coder ratings of this dimension to the ANCOVA described earlier. The effect of recall condition on positive affect remained significant,  $F(1,457) = 5.624, p = .018$ , suggesting that the material-experiential nature of purchases does not account for the present results. Similarly, the effect of condition remained significant when controlling for volition (vs. obligation) and want (vs. need) in separate ANCOVA analyses,  $F_s \geq 4.50, p_s < .035$ , suggesting that the observed effect is robust to variations along these dimensions.

Finally, although exploratory, coder ratings indicated that individuals in the prosocial (vs. personal) spending condition were more likely to spontaneously report being “happy” in their open-ended descriptions,  $F(1,460) = 5.428, p = .020$ .

Experiment 1 suggests that ex-offenders experience greater hedonic rewards after reflecting upon generous spending than personal spending when controlling for baseline well-being. We next examined the immediate emotional consequences of personal and prosocial spending in three experiments.

## Experiment 2

### Methods

**Participants.** Seventy-six delinquent youth ( $M_{age} = 15.73, SD = 1.33, .95CI [15.40-16.00]$ ; 36.6% men) were recruited at outreach centers providing services for at-risk youth to participate in a study on resiliency and everyday experiences in exchange for gift cards. Participants identified as Indigenous (15.6%), Caucasian (14.1%), and East Indian (6.3%). Twenty youth (31.3%) indicated that they preferred not to report their ethnicity and another twenty youth (31.3%) did not provide a response. As in Experiment 1, a power analysis was conducted using G\*Power 3 to determine sensitivity, results suggested we had 80% power to detect an effect of  $d = .65$  or similar.

If a youth expressed interest, a researcher collected his/her parent or legal guardian’s contact information and gave the youth an informational packet to take home. Parents/guardians were contacted to obtain parental consent. Once obtained, a researcher set up a one-on-one meeting for data collection at a local resource center. Youth provided assent. As noted in Table 3, twelve youth were excluded for either: opting-out of the prosocial task ( $n = 8$ ; this decision is consistent with Aknin et al., 2013 and findings do not change if these individuals are included),

failing to complete more than 75% of the dependent variables ( $n = 2$ ), or because they could not understand the study procedures, requiring early study termination ( $n = 2$ ). This left a final sample of 64 high-risk youth ( $M_{\text{age}}=15.89$ ,  $SD = 1.25$ , .95CI [15.60-16.20]; 38.1% men), which surpassed our pre-determined stopping rule of  $n = 60$  (the smallest number of participants required to detect a medium-to-large effect as observed in past work, Aknin et al., 2013). Sample size was determined before any data analysis.

**Qualification.** To qualify, youth must have self-reported either (a) engagement in one or more of 21 possible criminal behaviors within the past six months, (b) use of one or more illegal substances in the previous 30 days, or (c) membership in a delinquent peer group, defined as having 1 or more friends engaging in criminal behavior within the past 6 months. No youth were included for meeting criteria “b” only (see Table 5 for the sample’s risk criteria). Inclusion criteria were intentionally broad – though still designed to identify youth at risk of criminality based on well-supported risk factors – to obtain as large a sample as possible.

-- Insert Table 5 about here --

## Procedure

Baseline emotion was assessed using the same items as Experiment 1. State and trait happiness scores were positively correlated,  $r(62) = .52$ ,  $p < .001$ , and combined to create a single measure of baseline well-being.

**Goody-Bag Paradigm.** Adapting a previous paradigm used by Aknin and colleagues (2013), participants were provided with a questionnaire informing them that they had earned an additional \$2.50 for their participation. Funds were represented as a paper voucher. Participants signed a receipt to encourage feelings of ownership. The questionnaire then invited participants to use their voucher to purchase a goody-bag (valued at \$3.00) filled with either chocolate, juice, or both. Critically, youth were randomly assigned to one of two spending conditions. In the *personal spending* condition, participants were told the goody-bag they purchased was for them and available for pickup at the conclusion of the experiment. In the *prosocial spending* condition, participants were told that the goody-bag they purchased would be donated to a sick child at a local children’s hospital. After the purchase, participants received a thank-you note confirming this information.

**Opt-out.** In light of past research demonstrating that a sense of volition is essential for experiencing the emotional rewards of prosocial behavior (Weinstein & Ryan, 2010), participants in both conditions had the opportunity to opt-out of purchasing a goody-bag and take the cash value (\$2.50) for themselves. This option was included to ensure that participants in the prosocial spending condition felt as though they had chosen to give a charitable gift. We attempted to discourage opting-out by explaining that value would be mailed 90 days after study completion, but eight participants in the prosocial spending condition and nine participants in the personal spending condition opted out of purchasing a goody-bag. As noted in Table 3, individuals assigned to the prosocial spending condition and choosing to take the cash for themselves were excluded from analyses because they did not complete a prosocial act. This data analytic decision is consistent with past work utilizing this paradigm (e.g. Aknin et al., 2013) and

is necessary to ensure that participant behavior aligned with the manipulation. Importantly, however, results do not change if prosocial opt-outs are included. Participants opting out of the prosocial spending task did not differ from the rest of the sample in baseline happiness or any at-risk criteria (e.g., criminal behaviors, antisocial personality features;  $t_s < .80$ ,  $p_s > .30$ ,  $d_s < .30$ ), suggesting that these were not the most antisocial or criminally inclined individuals. Consistent with past research (Aknin et al., 2013), the nine participants in the personal spending condition who took the cash were retained because these individuals chose a personal benefit, which is consistent with their condition assignment; results do not change if these nine individuals are excluded.

Participants noted their spending choice on a purchase card and handed it, with the \$2.50 voucher, to the researcher. If the participant purchased a goody-bag, the researcher packaged their items immediately to show that their goody-bag was real. In both spending conditions, the goody-bag was set-aside until the conclusion of the experiment and participants were given a pre-prepared note thanking them for their purchase. If the participant took the cash for him/herself, they were asked to provide their mailing information for delivery.

All information indicating condition assignment was unknown to the researcher, precluding differential treatment. This was achieved by: (1) having study materials organized weeks in advance by researchers who did not run experimental sessions, (2) ensuring materials were in sealed envelopes until the experimental session began so that the researcher could not view condition assignment information, (3) making sure all study materials were identical for both conditions. As such, the researcher learned of condition assignment at the end of the experiment to give participants in the personal spending condition their goody-bag. Goody-bags purchased in the prosocial condition were donated to a local children's charity.

After the purchase, participants completed the PANAS including "happy" (Watson et al., 1988; PA:  $\alpha = .83$ ; NA:  $\alpha = .91$ ) and SWLS (Diener et al., 1985;  $\alpha = .83$ ). The correlation between "happy" and the 10 original positive affect items was significant and positive,  $r(62) = .510$ ,  $p < .001$ . Due to a methodological oversight, "sad" was not included in the PANAS.

**Risk criteria and delinquent behavior.** Youth completed the Youth Self-report of Offending scale (Huizinga, Esbensen & Weiher, 1991;  $\alpha = .90$ ), an adapted Teen Conflict Survey (Bosworth & Espelage, 1995;  $\alpha = .84$ ), and Delinquent Peers Scale (Thornberry, Lizotte, Krohn, Farnworth & Jang, 1994;  $\alpha = .94$ ) to assess self-reported substance abuse within the past 30 days and the proportion of a youth's friend group involved in criminal or delinquent behaviors, respectively.

**Antisocial personality and callous-unemotional traits.** Two questionnaires assessed antisocial personality features and callousness/unemotionality, precursors of psychopathic personality disturbance, in youth under 18: the Antisocial Process Screening Device – Self Report (Frick & Hare, 2001;  $\alpha = .77$ ) and the Inventory of Callous-Unemotional Traits (Frick, 2004;  $\alpha = .78$ ). See OSF for study materials and data.

## Results

Most youth (79.7%) reported recent criminal activity and 12% had been incarcerated (see Table 5 for more detail). Additionally, one-sample t-tests revealed that youth in the present study reported similar levels of antisocial personality features ( $M_{APSD} = 13.10$ ,  $SD = 5.31$ , .95CI [11.80-14.40];  $M_{ICU} = 26.14$ ,  $SD = 8.47$ , .95CI [24.10-28.20]) to other justice-involved youth assessed in previous research (Dillard, Salekin, Barker & Gimes, 2013:  $M_{APSD} = 13.82$ ,  $SD = 5.14$ , .95CI [13.30-14.30] Kimonis, Kennealy & Goulter:  $M_{ICU} = 24.54$ ,  $SD = 9.23$ , .95CI [23.30-25.70]; APSD,  $t(58) = -1.04$ ,  $p = .30$ ; ICU,  $t(55) = 1.42$ ,  $p = .16$ ), suggesting that we were successful in recruiting an antisocial youth sample.

Were the emotional benefits of prosocial spending detectable among at-risk and delinquent youth? Participants randomly assigned to the prosocial spending condition reported higher positive affect ( $M = 3.16$ ,  $SD = .65$ , .95CI [2.93-3.40]) than youth randomly assigned to the personal spending condition ( $M = 2.75$ ,  $SD = .71$ , .95CI [2.55-3.00]),  $t(62) = 2.410$ ,  $p = .019$ , .95CI [.069, .749],  $d = .60$ . Results were similar when baseline happiness was added as a covariate,  $F(1,60) = 7.411$ ,  $p = .008$ ,  $\eta^2 = .11$ . Post-spending life satisfaction did not differ by condition,  $t(61) = .777$ ,  $p = .440$ , but replicating Experiment 1 and past research, bootstrap analyses revealed that generous spending predicted higher life satisfaction through positive affect, unstandardized indirect effect = .09, 95% CI [.01, .23].

Experiment 2 suggests that the immediate benefits of generous behavior are detectable among at-risk youth. Given the small sample and restricted age range, we conducted a replication with a larger sample of adult ex-offenders.

### Experiment 3

#### Methods

**Participants.** 848 individuals ( $M_{age} = 31.20$ ,  $SD = 7.25$ , 95CI [30.70-31.70]; 68.0% men) with a self-reported history of serious criminal activity were recruited on MTurk. Participants identified as Caucasian (57.1%), Asian (23.4%), Black/African American (8.9%), Hispanic/Latino (5.3%), American Indian/Alaskan Native (3.0%), and “other” (2.1%). Two additional participants (.3%) did not respond to the question.

Mturk was used to recruit ex-offenders for the same reasons listed in Experiment 1. A sample of 800 was determined a priori using G\*power to allow detection of a small effect ( $d = .20$ ) with alpha at .05 and 80% power. Sample size was determined before any data analysis. As noted in Table 3, all participants passed the criminal history check, however, consistent with Experiment 1 and past research (Aknin et al., 2013) seventy-one individuals in the prosocial condition who opted out of completing a prosocial action were excluded from analyses (explained below; results are similar if these individuals are included). This left a final sample of 777 adults ( $M_{age} = 31.24$ ,  $SD = 7.39$ , 95CI [30.70-31.80], 68.4% men) of ex-offenders.

**Criminal history check.** The same requirements and procedure utilized in Experiment 1 were repeated here. The only difference, however, was that participants were asked to report their criminal history on a slightly revised criminal checklist that allowed us to employ a criminal severity scaling method to generate offending scores (Kazemian & Le Blanc, 2007; Le Blanc & Fréchette, 1989). Once again, we required that participants provide matching criminal

history reports at the beginning and end of the survey to warrant inclusion. As noted in Table 3, all participants met this requirement and were retained in analyses. Table 6 presents the full list of felonies that participants used to identify past criminal behavior, along with the number of participants reporting engagement in each activity.

-- Insert Table 6 about here --

## Procedure

Participants reported their baseline well-being on the same measures used in Experiments 1-2 with the addition of a single item “proud”. State and trait happiness scores were positively correlated,  $r(775) = .47, p < .001$ , and combined to create a single measure of baseline well-being. Analyses including the item “proud” are presented in the SI and do not differ from those reported here.

**Goody-Bag Paradigm.** We adapted the goody-bag paradigm for an online platform by telling participants that they had earned an additional \$0.10 (presented as an electronic voucher) for their participation and were encouraged to take ownership of this money by typing their MTurk ID as an electronic receipt.

Participants were then given the choice of making a purchase with their additional funds. To facilitate more meaningful purchases, participants were told that the additional \$0.10 sum would be multiplied by 10 to provide \$1 of purchasing power. As such, participants randomly assigned to the *prosocial spending condition* were given the option to use their funds to make a \$1 donation to one of two real charity projects currently listed online through the non-profit organization DonorsChoose.org. One project provided snack items to hungry students in low-income neighbourhoods and the other project provided pens to needy students. Participants randomly assigned to the *personal spending condition* were given the option to purchase a snack item or pen (valued at \$1) for themselves. Thus, purchase options (snacks or pen) and value (\$1) were equated across conditions.

**Opt-out.** Once again, given past research demonstrating that a sense of volition is essential for experiencing the emotional rewards of prosocial behavior (Weinstein & Ryan, 2010), participants in both conditions had the opportunity to opt-out of the purchasing decision and keep the \$.10. This option ensured that participants in the prosocial condition felt as though they had chosen to give a charitable gift. A total of 168 participants kept the funds (prosocial spending condition,  $n = 71$ ; personal spending condition,  $n = 97$ ), but as noted in Table 3, only those in the prosocial spending condition were excluded from analyses because they did not complete a prosocial act (consistent with Aknin et al., 2013). Individuals opting-out of the prosocial condition did not differ from the rest of the sample in criminal behaviour,  $t(75.46) = -1.32, p = .19$  or violent activity,  $t(20.98) = -1.82, p = .08$ , but they did report higher antisociality on the TriPM and CAPP ( $ts > -2.20, ps < .02$ ). Importantly, however, when individuals opting-out of the prosocial condition were removed, the remaining sample still reported significantly higher antisocial and psychopathic personality features than those reported in community samples ( $ts > 16.6, ps < .01$ ). Moreover, key results remain unchanged when prosocial opt-outs are included.<sup>i</sup> Consistent with past research, participants who opted to take the cash for themselves in the

personal spending condition were retained because these individuals chose a personal benefit in the form of cash for themselves.<sup>ii</sup>

Participants were given a thank-you note after their purchase indicating that their donation or item would be delivered at the conclusion of the experiment. After, participants reported their current affect on the PANAS including “happy” and “sad” (Watson et al., 1988; PA:  $\alpha = .92$ ; NA:  $\alpha = .96$ ). As in Experiments 1-2, the item “happy” was added to the PANAS. The correlation between “happy” and the 10 original PA items was significant and positive,  $r(775) = .737, p < .001$ . Similarly, as seen in Experiment 1, the item “sad” was included in the measure of NA. The correlation between the item “sad” and the 10 original NA items was significant and positive,  $r(775) = .825, p < .001$ . Participants also completed the Beneficence Satisfaction Scale (Martela & Ryan, 2016;  $\alpha = .92$ ) to assess perceived positive impact of one’s behavior on others (e.g., “I have been able to improve the welfare of other people”).

Finally, participants completed the same measures of antisocial/psychopathic personality and callousness/unemotionality used in Experiment 1: the TriPM (Patrick, 2010;  $\alpha = .91$ ), CAPP (Cooke et al., 2004;  $\alpha = .96$ ), PES (Campbell et al., 2004;  $\alpha = .91$ ), and BID-R (Paulus, 1984;  $\alpha = .80$ ). See SI for analyses demonstrating a small but significant correlation between psychological entitlement and criminal behaviour.

**Participant payment.** To avoid collecting personally identifying information (e.g., email or mailing address), participants in the personal spending condition were not sent the granola bar or pen they purchased. Instead, participants were credited the \$1.00 value as a bonus to their mTurk account within 10 days of study close. Similarly, participants who opted to keep the \$.10 for themselves had the money credited to their mTurk account within 10 days of study close. Donations in the prosocial spending condition were distributed as stated. Critically, delayed payment, donation, and debriefing were used to ensure that these payment details did not alter participant behavior during data collection (see OSF for study materials and data).

## Results

**Criminal activity and antisocial personality.** Nearly three quarters of the sample (72.6%) had been arrested for criminal behavior (see Table 6 for detailed breakdown of offenses). Once again, because non-clinical measures of psychopathy do not have cut-off scores to classify respondents, we compared the responses provided by the present sample to base rates observed in the general population as a benchmark. Doing so allowed us to examine whether the present sample reported similar or elevated levels of psychopathic tendencies. Participants reported significantly higher scores on the TriPM and two relevant sub-scales (meanness and disinhibition;  $M_{total} = 139.82, SD = 21.20, .95CI [138.00-141.00]$ ;  $M_{Meanness} = 38.65, SD = 10.85, .95CI [37.90-39.40]$ ;  $M_{Disinhibition} = 49.04, SD = 11.57, .95CI [48.20-49.90]$ ) than community samples (Driscoll et al., 2014:  $M_{total} = 120.10, SD = 15.67, .95CI [119.00-121.00]$   $M_{Meanness} = 32.19, SD = 7.87, .95CI [31.60-32.80]$   $M_{Disinhibition} = 35.13, SD = 7.44, .95CI [34.50-35.70]$ ; TriPM total,  $t(776) = 25.930, p < .001$ ; Meanness,  $t(776) = 16.600, p < .001$ , Disinhibition,  $t(776) = 33.516, p < .001$ ), again suggesting that we were able to recruit individuals with elevated levels of antisocial and psychopathic personality features.

**Emotional consequences of personal or prosocial spending.** Ex-offenders who purchased an item for a needy child reported higher positive affect ( $M = 3.39$ ,  $SD = .92$ , .95CI [3.18-3.60]) than ex-offenders who purchased an item for themselves ( $M = 3.25$ ,  $SD = .91$ , .95CI [3.07-3.43]),  $t(775) = 2.055$ ,  $p = .04$ , 95CI [.006, .263],  $d = .15$ . Results were similar when baseline well-being was added as a covariate,  $F(1,774) = 4.696$ ,  $p = .031$ ,  $\eta^2 = .006$ , and when controlling for socially desirable responding and self-deceptive enhancement,  $F(1,773) = 5.097$ ,  $p = .024$ ,  $\eta^2 = .007$ . A post-hoc power analysis conducted with G\*Power 3 suggested we had 80% power to detect an effect of  $d = .20$  or similar.

Finally, we conducted an exploratory investigation into the impact of spending condition on beneficence satisfaction – defined as the satisfaction one feels from positively impacting others – as measured by the Beneficence Satisfaction Scale (Martela & Ryan, 2016). Results of an independent samples  $t$ -test revealed that individuals in the prosocial spending condition reported significantly higher feelings of beneficence satisfaction ( $M = 5.33$ ,  $SD = 1.26$ , .95CI [5.04-5.62]) than did those in the personal spending condition ( $M = 3.80$ ,  $SD = 1.66$ , .95CI [3.47-4.13]),  $t(764.62) = -14.521$ ,  $p < .001$ . Feelings of beneficence, in turn, predicted higher levels of post-spending positive affect, standardized beta = .537,  $p < .001$ , while controlling for condition assignment, standardized beta = -.167,  $p < .001$ . As such, these findings are consistent with mediation; higher levels of positive affect may be partially explained by feelings of beneficence (unstandardized indirect effect = .44, .95CI [.36, .54]), but given the ambiguity surrounding mediation analyses (Fiedler, Harris & Schott, 2018), these findings should be interpreted with caution as only one possible explanation.

Experiment 3 suggests that the immediate benefits of generous behavior are detectable among self-reported ex-offenders when controlling for baseline happiness. Finally, we tested our main directional hypothesis – that the emotional benefits of prosocial spending would be detectable among antisocial individuals (while controlling for baseline happiness) – in a large, pre-registered replication.

## Experiment 4

### Methods

**Participants.** 1,414 individuals ( $M_{age} = 30.34$ ,  $SD = 7.39$ , .95CI [30.00-30.70]; 62.0% men) with a self-reported history of serious criminal activity were recruited on MTurk. Participants identified as Caucasian (52.7%), Asian (28.5%), Black/African American (9.9%), Hispanic/Latino (4.2%), American Indian/Alaska Native (2.8%), Hawaiian/Pacific Islander (.2%), and “other” (1.5%). An additional .2% did not identify their ethnicity.

We aimed to recruit a final sample of 1,280, which was determined a priori using G\*power to detect a small effect ( $d = .15$ ) at 80% power and alpha at .05 one-tailed. Sample size was determined before any data analysis. We oversampled slightly to allow exclusions that aligned with pre-registered criteria: failing the criminal history check and prosocial opt-outs. Consistent with pre-registered exclusion criteria, one hundred nineteen individuals in the prosocial condition who opted out of completing a prosocial action were excluded from analyses. To confirm criminal history, we employed the same procedure used in Experiments 1 and 3, which required that participants provide matching criminal history reports at the beginning and

end of the survey to warrant inclusion. As noted in Table 3, all participants met this pre-registered requirement. This left a final sample of 1,295 ex-offenders ( $M_{\text{age}} = 30.44$ ,  $SD = 7.33$ , .95CI [29.90-30.70] 61.1% men).

## Procedure

The procedure for Experiment 4 was identical to Experiment 3 with the following exceptions. First, a shorter and more streamlined list of measures was presented to participants. At baseline, only state happiness was measured (same item from Experiments 1-3) to isolate the impact of momentary differences in well-being. Post-spending, only the adapted PANAS, including the items “happy” and “sad” (PA:  $\alpha = .93$ ; NA:  $\alpha = .96$ ), the CAPP ( $\alpha = .91$ ), TriPM ( $\alpha = .90$ ), and BID-R ( $\alpha = .79$ ) were measured. As in Experiments 1-3, “happy” correlated positively and significantly with the 10 original PA,  $r(1411) = .741$ ,  $p < .001$ . Similarly, as seen in Experiments 1 and 3, “sad” correlated positively and significantly with the 10 original NA items,  $r(1411) = .823$ ,  $p < .001$ .

Second, in attempt to further encourage spending and disincentivize opt-out behavior, participants were provided with additional earnings of only \$0.05 (half the value of Experiment 3), which was multiplied by 20, to provide \$1 of purchasing power, if used for a spending decision in both the personal and prosocial spending conditions. Finally, we updated the charitable giving choices in the prosocial condition to reflect new and active postings on DonorsChoose.org. Like before, charitable projects provided snacks or writing supplies to needy children, and purchasing options in the personal condition were snack items or writing supplies (see OSF for pre-registration, study materials and data).

## Results

**Criminal activity and antisocial personality.** A large portion of the sample (69.0%) had been arrested for criminal behavior (see Table 7 for the full list of felonies that participants used to identify past criminal behavior, along with the number of participants reporting engagement in each activity). Consistent with our pre-registered sampling plan, participants reported significantly higher scores on the TriPM ( $M_{\text{total}} = 139.53$ ,  $SD = 21.73$ , .95CI [138.00-141.00];  $M_{\text{Meanness}} = 41.89$ ,  $SD = 11.78$ , .95CI [41.20-42.50];  $M_{\text{Disinhibition}} = 48.03$ ,  $SD = 11.03$ , .95CI [47.40-48.60]) than did community samples (Driscoll et al., 2014:  $M_{\text{total}} = 120.10$ ,  $SD = 15.67$ , .95CI [119.00-121.00]  $M_{\text{Meanness}} = 32.19$ ,  $SD = 7.87$ , .95CI [31.60-32.80]  $M_{\text{Disinhibition}} = 35.13$ ,  $SD = 7.44$ , .95CI [34.50-35.70]; TriPM total,  $t(1293) = 31.493$ ,  $p < .001$ ; Meanness,  $t(1293) = 29.633$ ,  $p < .001$ , Disinhibition,  $t(1293) = 42.054$ ,  $p < .001$ ), suggesting that we effectively recruited antisocial individuals.

-- Insert Table 7 about here --

**Emotional consequences of personal or prosocial spending.** We tested our pre-registered hypotheses with the following analyses. First, we compared post-spending positive affect with an independent samples t-test. While ex-offenders who purchased an item for a needy child reported higher positive affect ( $M = 3.23$ ,  $SD = .96$ , .95CI [3.15-3.31]) than ex-offenders who purchased an item for themselves ( $M = 3.17$ ,  $SD = .93$ , .95CI [3.10-3.24]), this difference



was not statistically significant,  $t(1289) = 1.091$ ,  $p = .138$  one-tailed, 95CI [-.046, .161],  $d = .06$ . However, consistent with our pre-registered hypotheses, the main effect of condition on post-spending positive affect was significant when controlling for baseline happiness,  $F(1,1228) = 3.500$ ,  $p = .031$ , one-tailed,  $d = .11$ . Additionally and consistent with our pre-registered hypotheses, the main effect of condition on positive affect was significant when controlling for baseline happiness and socially desirable responding,  $F(1,1287) = 3.590$ ,  $p = .029$  one-tailed. Results of a sensitivity analysis conducted through G\*Power 3 suggested we had 80% power to detect an effect of  $d = .16$  or similar. These findings suggest that the emotional rewards of prosocial spending are detectable in antisocial samples when controlling for baseline well-being.

### General Discussion

This research is the first to examine whether the emotional rewards of generous behavior are detectable among individuals with criminal histories and antisocial inclinations. While elevated antisocial and psychopathic personality features are thought to reflect higher self-interest and dampened concern for others (Hastings et al., 2000; Lynam, 2011), this work suggests that adults and adolescents reporting antisocial tendencies experience hedonic rewards from giving when controlling for baseline happiness. These findings provide a severe test of the theory that emotional benefit is linked to prosocial action and add to recent work suggesting that the emotional benefits of prosocial behaviour may be a functional universal, detectable across the globe and lifespan (Aknin et al., 2013, 2015).

Effect sizes observed in three of the present studies (Experiments 1, 3-4) are smaller than those detected in past research conducted with non-offender samples. While the detection of *any* emotional benefit from giving among individuals reporting elevated antisocial and psychopathic tendencies is consistent with the definition of a functional universal (Norenzayan & Heine, 2005), these findings suggest that the warm glow of giving may be negligible or absent among exceptionally antisocial offenders.

Critically, however, we believe that the present findings are of value for at least three reasons. First, as noted in the introduction, exceptionally antisocial individuals reporting elevated levels of psychopathic personality features are known to experience “limited prosocial emotions” (APA, 2013) and reduced empathy for others (Dadds et al., 2009). As such, although we did not have the means to assess clinical levels of antisocial or psychopathic personality features, the present findings are notable precisely because they deviate from theoretical predictions indicating that antisocial actors might experience *negative* emotional consequences from engaging in prosocial action, especially in comparison to opportunities for self-gain. Second, the present results extend our understanding of prosociality and its consequences to new, theoretically relevant, and understudied samples: ex-offenders and delinquent youth expressing heightened antisociality. Finally, seeing as our samples represented antisocial actors living in the general population, these findings suggest that prosociality may be rewarding for the majority of antisocial offenders encountered on a daily basis.

Several important limitations warrant discussion. First, our sample did not include the most extreme antisocial actors, such as those surpassing clinical diagnostic thresholds for psychopathic personality disorder/antisocial personality disorder, or individuals currently

incarcerated for extensive criminal careers. As noted above, future research should examine boundary conditions at extremely high antisocial responding. Second, individuals exhibiting elevated psychopathic tendencies may have trouble reporting their own and others emotions (Herpetz, et. al., 2011; Lilienfeld, Fowler & Patrick, 2006). Indeed, while participants may have reported elevated positive affect, we cannot confirm that they are interpreting their affect in similar ways to non-offending samples. However, such emotional hyporesponsiveness is rare in self-reported emotion (Gao, Raine & Schug, 2012) and, if anything, would make the present findings harder to detect.

Perhaps a more relevant concern is that individuals with elevated psychopathic traits tend to engage in deception, a cardinal feature of psychopathic personality disorder, especially when given the opportunity to appear as a principled character (Lilienfeld et al., 2006). While it is possible that participants inflated ratings of positive affect after prosocial action to appear favourably, several features alleviate this concern. First, data collection in Experiments 1, 3, and 4 was anonymous, meaning that only the participant was aware of his/her behavior and emotional response. Experiment 2 was conducted in person, but research assistants were unaware of condition, reducing the possibility for immediate praise or reward. Second, participants committing prosocial behavior in Experiments 2-4 did not have contact with their beneficiary, and all gifts were donated anonymously, ruling-out immediate praise and public positive self-presentation as explanations for increased positive affect. Third, participants were unaware of other conditions, removing the desire to anchor responses to other-directed spending. Finally, the emotional rewards of prosocial behavior remain while controlling for impression management. Thus, although we cannot definitively rule out self-presentation as an alternative explanation, these features minimize concerns.

In addition, participants did not incur large financial losses when engaging in prosocial spending. Indeed, acts of personal and prosocial spending cost participants in Experiments 3 and 4 either \$0.05 or \$0.10, a sum that was then multiplied by researchers to provide meaningful purchasing power. Given that real world acts of personal and prosocial spending are rarely this small or multiplied in value, this may limit generalizability. Finally, statistical power to detect effects in Experiment 2 was low given the small sample and slow recruitment. While small samples may be a common occurrence when studying unique populations, future research should aim to replicate these findings with in-person methods and larger samples.

The present findings offer practical and theoretical implications. First, results demonstrating that ex-offenders and at-risk youth may experience emotional benefits from helping others might humanize ex-offenders who are often viewed as irredeemable (Pager, 2003). To the extent that emotional rewards make subsequent behavior more likely, the present work suggests that altruistic based intervention strategies may provide effective routes for treatment and rehabilitation (Barnao, Ward & Robertson, 2016; Gredecki & Turner, 2009; LeBel, Richie & Maruna, 2015), presuming that they are consistent with well-validated methods of correctional programming (Andrews, 2012). In turn, these findings could offer guidance for re-evaluating how criminal and high-risk populations are treated, especially through rehabilitation (Lebel et al., 2015). More broadly, these findings contribute to a greater understanding of human prosociality and suggest that the warm glow of giving may be detectable among antisocial populations.

## References

- Aknin, L. B., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Burns, J., Biswas-Diener, R., Kemeza, I., Nyende, P., Ashton-James, C. E., & Norton, M. I. (2013). Prosocial spending and well-being: Cross-cultural evidence for a psychological universal. *Journal of Personality and Social Psychology, 104*(4), 635-652.
- Aknin, L. B., Broesch, T., Hamlin, J. K., & Van de Vondervoort, J. (2015). Prosocial behavior leads to happiness in a small-scale rural society. *Journal of Experimental Psychology-General, 144* (4), 788-795.
- Aknin, L. B., Dunn, E. W., Sandstrom, G. M., & Norton, M. I. (2013). Does social connection turn good deeds into good feelings?: The value of putting the "social" in prosocial spending. *International Journal of Happiness and Development, 1*(2), 155-171. doi: 10.1504/IJHD.2013.055643
- Aknin, L. B., Dunn, E. W., Whillans, A., Grant, A. M., & Norton, M. I. (2013). Feeling like you made a difference: On the importance of perceived prosocial impact when giving to others. *Journal of Economic Behavior and Organization, 88*, 90-95. doi: 10.1016/j.jebo.2013.01.008
- Aknin, L. B., Fleerackers, A. L., & Hamlin, J. K. (2014). Can third-party observers detect the emotional rewards of generous spending?. *The Journal Of Positive Psychology, 9*(3), 198-203. doi:10.1080/17439760.2014.888578
- Aknin, L. B., Mayraz, G. & Helliwell, J. F. (2017). The emotional consequences of donation opportunities. *Journal of Positive Psychology, 2*, 169-177. doi: 10.1080/17439760.2016.1163409
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*. American Psychiatric Pub.
- Andrews, D. A. (2012). The risk-need-responsivity (RNR) model of correctional assessment and treatment.
- Bartal, I. B. A., Decety, J., & Mason, P. (2011). Empathy and pro-social behavior in rats. *Science, 334*(6061), 1427-1430.
- Barnao, M., Ward, T., & Robertson, P. (2016). The good lives model: a new paradigm for forensic mental health. *Psychiatry, Psychology and Law, 23*(2), 288-301.
- Bosworth K, Espelage D. *Teen Conflict Survey*. Bloomington, IN: Center for Adolescent Studies, Indiana University, 1995. (Unpublished)
- Brownell, C. A. (2013). Early development of prosocial behavior: Current perspectives. *Infancy, 18*(1), 1-9.
- Campbell, K. W., Bonacci, A. M., Shelton, J., Exline, J. J., & Bushman, B. J. (2004). Psychological entitlement: Interpersonal consequences and validation of a self-report measure. *Journal of Personality Assessment, 83*(1) 29-45.
- Coleman, C., & Moynihan, J. (1996). *Understanding crime data: Haunted by the dark figure*. Buckingham, UK: Open University Press.
- Cooke, D. J., Hart, S., Logan, C., & Michie, C. (2004). *Comprehensive Assessment of Psychopathic Personality-Institutional Rating Scale (CAPP-IRS)*. Unpublished manuscript. Glasgow Caledonian University, Glasgow, UK.
- Curry, O. S., Rowland, L. A., Van Lissa, C. J., Zlotowitz, S., McAlaney, J., & Whitehouse, H. (2018). Happy to help? A systematic review and meta-analysis of the effects of performing acts of kindness on the well-being of the actor. *Journal of Experimental Social Psychology, 76*, 320-329.

- Dadds, M. R., Hawes, D. J., Frost, A. D., Vassallo, S., Bunn, P., Hunter, K., & Merz, S. (2009). Learning to ‘talk the talk’: The relationship of psychopathic traits to deficits in empathy across childhood. *Journal of Child Psychology and Psychiatry*, *50*(5), 599-606.
- Deaton, A. (2008). Income, health, well-being around the world: Evidence from the Gallup World Poll. *The Journal of Economic Perspectives*, *22*, 53–72.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*(1), 71-75.
- Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being? *Social Indicators Research*, *57*, 119–169.
- Dillard, C. L., Salekin, R. T., Barker, E. D., & Grimes, R. D. (2013). Psychopathy in adolescent offenders: An item response theory study of the antisocial process screening device–self report and the Psychopathy Checklist: Youth Version. *Personality Disorders: Theory, Research, And Treatment*, *4*(2), 101-120. doi:10.1037/a0028439
- Drislane, L. E., Patrick, C. J., & Arsal, G. (2014). Clarifying the content coverage of differing psychopathic inventories through reference to the triarchic psychopathy measure. *Psychological Assessment*, *26*(2), 350-362.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, *319*(5870), 1687-1688.
- Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin*, *101*(1), 91-119.
- Fiedler, K., Harris, C., & Schott, M. (2018). Unwarranted inferences from statistical mediational tests: An analysis of articles published in 2015. *Journal of Experimental Social Psychology*, *75*, 95-102.
- Frick, P.J. (2004). The inventory of callous-unemotional traits. Unpublished rating scale.
- Frick, P. J. & Hare, R. D. (2001). *The antisocial process screening device*. Toronto: Multi-Health Systems.
- Gao, Y., Raine, A., & Schug, R. A. (2012). Somatic aphasia: Mismatch of body sensations with autonomic stress reactivity in psychopathy. *Biological Psychology*, *90*(3), 228-233.
- Geenen, N. Y., Hohelüchter, M., Langholf, V., & Walther, E. (2014). The beneficial effects of prosocial spending on happiness: Work hard, make money, and spend it on others?. *The Journal of Positive Psychology*, *9*(3), 204-208.
- Gredecki, N., & Turner, P. (2009). Positive psychology and forensic clients: Applications to relapse prevention in offending behaviour interventions. *The British Journal of Forensic Practice*, *11*(4), 50-59.
- Harbaugh, W. T., Mayr, U., & Burghart, D. R. (2007). Neural responses to taxation and voluntary giving reveal motives for charitable donations. *Science*, *316*, 1622-1625.
- Hastings, P. D., Zahn-Waxler, C., Robinson, J., Usher, B., & Bridges, D. (2000). The development of concern for others in children with behavior problems. *Developmental Psychology*, *36*(5), 531.
- Helliwell, J. F., Huang, H., & Wang, S. (2017). The Social Foundations of World Happiness. *World Happiness Report 2017*, 8-47.
- Hemphill, J., Templeman, R., Wong, S., & Hare, R. (1998). Psychopathy and crime: Recidivism and criminal careers. In D. Cooke, A. Forth, & R. Hare (Eds.), *Psychopathy: Theory, research, and implications for society* (pp. 374-399). Dordrecht, The Netherlands: Kluwer.
- Herpertz, S. C., Werth, U., Lukas, G., Qunaibi, M., Schuerkens, A., Kunert, H. J., ... & Sass, H. (2001). Emotion in criminal offenders with psychopathy and borderline personality disorder. *Archives of General Psychiatry*, *58*(8), 737-745.

- Hill, G., & Howell, R. T. (2014). Moderators and mediators of pro-social spending and well-being: The influence of values and psychological need satisfaction. *Personality and Individual Differences, 69*, 69-74.
- Huizinga, D., Esbensen, F., & Weiher, A. (1991). Are there multiple pathways to delinquency? Denver youth survey. *Journal of Criminal Law and Criminology, 82*, 83-118.
- Jolliffe, D., Farrington, D. P., Hawkins, J. D., Catalano, R. F., Hill, K. G., & Kosterman, R. (2003). Predictive, concurrent, prospective and retrospective validity of self-reported delinquency. *Criminal Behaviour and Mental Health, 13*(3), 179-197.
- Kazemian, L., & Le Blanc, M. (2007). Differential cost avoidance and successful criminal careers: random or rational? *Crime & Delinquency, 53*(1), 38-63.
- Kimonis, E. R., Kennealy, P. J., & Goulter, N. (2016). Does the Self-Report Inventory of Callous-Unemotional Traits Predict Recidivism? *Psychological Assessment, 28*(12), 1616-1624.
- Lebel, T. P., Richie, M., & Maruna, S. (2015). The role of the wounded healer in prisoner reentry programs. *Criminal Justice and Behavior, 42*(1), 108-120.
- Le Blanc, M., & Fréchette, M. (1989). *Male criminal activity from childhood through youth: Multilevel and developmental perspectives*. New York: Springer-Verlag.
- Lilienfeld, S. O., Fowler, K. A., & Patrick, C. (2006). The self-report assessment of psychopathy. *Handbook of Psychopathy, 107-132*.
- Lynam, D. R. (2011). Psychopathy and narcissism. In W. K. Campbell & J. D. Miller (Eds.), *The handbook of narcissism and narcissistic personality disorder: Theoretical approaches, empirical findings, and treatments*, (pp. 272-282). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Lyubomirsky, S. & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research, 46*, 137-155
- Martela, F., & Ryan, R. M. (2016). The benefits of benevolence: Basic psychological needs, beneficence, and the enhancement of well-being. *Journal of Personality, 84*(6), 750-764.
- Meier, S., & Stutzer, A. (2008). Is volunteering rewarding in itself?. *Economica, 75*(297), 39-59.
- Norenzayan, A., & Heine, S. J. (2005). Psychological universals: What are they and how can we know? *Psychological Bulletin, 131*, 763-784.
- Pager, D. (2003). The mark of a criminal record. *The American Journal of Sociology, 108*, 937-975.
- Paolacci, G., & Chandler, J. (2014). Inside the Turk: Understanding Mechanical Turk as a participant pool. *Current Directions in Psychological Science, 23*(3), 184-188.
- Patrick, C. J. (2010). *Operationalizing the triarchic conceptualization of psychopathy: Preliminary description of brief scales for assessment of boldness, meanness, and disinhibition*. Unpublished manuscript, Department of Psychology, Florida State University, Tallahassee, FL.
- Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*(3), 598-609.
- Popper, K. (1963). *Conjectures and Refutations: the Growth of Scientific Knowledge* Fifth edition. London: Routledge.
- Prentice, D. A., & Miller, D. T. (1992). When small effects are impressive. *Psychological Bulletin, 112*(1), 160-164.
- Sweeten, G. (2012). Scaling criminal offending. *Journal of Quantitative Criminology, 28*, 533-557.
- Thornberry T.P., Lizotte, A.J., Krohn, M.D., Farnworth, M., Jang, S.J., (1994). Delinquent peers, beliefs, and delinquent behavior: a longitudinal test of interactional theory. *Criminology, 32*, 47-83.
- Thornberry, T. P., & Krohn, M. D. (2000). The self-report method for measuring delinquency and crime. *Criminal Justice, 4*(1), 33-83.

- Van Boven, L., & Gilovich, T. (2003). To do or to have? That is the question. *Journal of Personality and Social Psychology*, 85(6), 1193-1202.
- Watson, D., Clark, L. E., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54(6), 1063-1070.
- Weinstein, N., & Ryan, R. M. (2010). When helping helps: Autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 98(2), 222-244.
- Whillans, A. V., Aknin, L. B., Ross, C., Chen, L., Chen, F. S. (under review). Common variants of the oxytocin receptor gene do not predict the emotional benefits of prosocial spending. Manuscript submitted for publication.
- Whillans, A. V., Dunn, E. W., Sandstrom, G. M., Dickerson, S. S., & Madden, K. M. (2016). Is spending money on others good for your heart?. *Health Psychology*, 35(6), 574-583. doi:10.1037/hea0000332

### Tables and Figures

Table 1.  
*Observed effect sizes in prosocial spending experiments*

Study	DV	Experimental design	N	Sample	Cohen's $d$ [CI]
Aknin, Barrington-Leigh et al. (2013)	PA	Prosocial vs. Personal Purchase	86 121	Student (Canada) Student (South Africa)	$d = .46$ [.18, .74] across both samples
Aknin, Broesch, Hamlin, Van de Vondervoot (2015)	PA	Prosocial vs. Personal Purchase	26	Community (Vanuatu)	$d = .93$ [.12, 1.74]
Aknin, Dunn, Sandstrom & Norton (2013)	WB	Prosocial vs. Personal Purchase	50	Community (Canada)	$d = .24$ [-.32, .80]
Aknin, Fleerackers & Hamlin (2014)	PA	Prosocial vs. Personal Purchase	119	Student (Canada)	$d = .38$ [.02, .74]
Dunn, Aknin & Norton (2008)	H	Prosocial vs. Personal Purchase	46	Student (Canada)	$d = .67$ [.08, 1.26]
Geenan, Hohelüchter, Langholf & Walther (2014)	H	Prosocial vs. Personal Purchase	68	Student (Germany)	$d = .62$ [.12, 1.10]
Whillans, Dunn, Sandstrom, Dickerson & Madden (2016)	WB	Prosocial vs. Personal Purchase	73	Community hypertense older adults (Canada)	$d = .19$ [-.27, .65]

*Note:* PA = positive affect; WB = well-being; H = happiness. This table includes experiments focusing on prosocial spending interventions; see Curry et al. (2018) for meta-analytic review of the hedonic benefits of helping behaviour.

Table 2.  
*Criminal offense history information for participants in Experiment 1*

	<i>n</i>
Assault	117
Child abuse/neglect	5
Domestic violence	40
Drug related offenses	170
Fraud	57
Human trafficking	1
Kidnapping	2
Manslaughter	4
Motor vehicle theft	24
Murder	8
Possession of weapon without permit	70
Rape	7
Robbery	52
Sexual offense/violence	14
Theft over \$5,000	68
Vandalism	46
Average Tri-PM Total score (SD)	133.30 (22.96) ** .95CI [131.00-135.00]
Average Tri-PM Meanness (SD)	38.28 (11.89) ** .95CI [37.20-39.30]
Average Tri-PM Disinhibition (SD)	45.85 (12.16) ** .95CI [44.80-46.90]
Average CAPP (SD)	65.46 (19.68) .95CI [63.80-67.20]

*Note:* TriPM refers to the Triarchic Psychopathy Measure and CAPP refers to the Comprehensive Assessment of Psychopathic Personality; scales assess antisocial and psychopathic personality features. \*\* indicates that this average score was significantly higher than community sample reported in previous research (Drislane, Patrick & Arsal, 2014). Average CAPP responses could not be compared to community samples because this information is not available in the literature. Crimes sum to more than 501 because several participants reported engaging in more than one behavior.



Table 3.  
*Sample size and exclusion information for Experiments 1-4*

Experiment	Initial sample	Exclusions			Final sample
		<i>Failed criminal history check</i>	<i>Did not complete procedure</i>	<i>Prosocial spending opt-out</i>	
1	514	13	0	n/a	501
2	76	0	4	8	64
3	848	0	0	71	777
4	1,414	0	0	119	1,295

Table 4.

*Coder reliabilities and frequency ratings by recall condition in Experiment 1*

Coding dimension (ICC)	Recall Condition	
	Prosocial	Personal
<i>Purchase beneficiary</i>		
Self (.97)	12.0% <sup>a</sup>	97.3% <sup>b</sup>
Friend (.97)	26.3% <sup>a</sup>	1.3% <sup>b</sup>
Family (.99)	38.6% <sup>a</sup>	< 1.0% <sup>b</sup>
Partner (.98)	26.1% <sup>a</sup>	1.5% <sup>b</sup>
Charity (.87)	3.89% <sup>a</sup>	< 1.0% <sup>b</sup>
<i>Purchase content</i>		
Personal Necessity (.76)	8.3% <sup>a</sup>	5.7% <sup>a</sup>
Food (.90)	13.6% <sup>a</sup>	19.4% <sup>a</sup>
Transportation (.84)	1.9% <sup>a</sup>	<1.0% <sup>a</sup>
Experience (.95)	29.6% <sup>a</sup>	16.2% <sup>b</sup>
Illegal substance (.67)	< 1.0% <sup>a</sup>	< 1.0% <sup>a</sup>
Medical (.93)	<1.0% <sup>a</sup>	< 1.0% <sup>a</sup>
Clothing (.97)	11.8% <sup>a</sup>	22.6% <sup>b</sup>
School (.86)	2.2% <sup>a</sup>	< 1.0% <sup>b</sup>
<i>Purchase Motivation M (SD)</i>		
Need vs. want (.83)	5.3 (1.20) <sup>a</sup>	5.0 (1.46) <sup>b</sup>
Obligation vs. volition (.71)	5.7 (0.85) <sup>a</sup>	5.5 (1.10) <sup>b</sup>
Selfishness vs. generosity (.90)	5.6 (0.77) <sup>a</sup>	2.9 (0.86) <sup>b</sup>
<i>Emotion</i>		
Happiness (.95)	12.3% <sup>a</sup>	6.4% <sup>b</sup>
Positivity (.88)	33.6% <sup>a</sup>	33.2% <sup>a</sup>
Negativity (.85)	2.8% <sup>a</sup>	4.5% <sup>a</sup>

*Note.* Means with different superscripts are significantly different from one another  $p < .05$ . If coders disagreed, an item was only noted as present when 3 of 4 coders agreed. Coders were instructed to look for spontaneous mention of other emotions (e.g., pride, anger, and hostility), but these emotions were not mentioned.

Table 5.  
*Antisocial tendency reports from youth in Experiment 2*

Characteristic	<i>N</i>	%
<i>Arrest</i>		
Yes	27	50.9
No	26	49.1
Mean age of first arrest (SD)	13.60 (2.50)	
<i>Incarceration</i>		
Yes	6	12
No	39	78
Don't know	5	10
<i>Personal criminal activity</i>		
Yes	51	79.7
No	13	20.3
<i>Substance Use</i>		
Yes	46	71.9
No	18	28.1
<i>Delinquent Peer</i>		
Yes	57	90.5
No	6	9.5
Average APSD Score (SD)	13.10 (5.31)	.95CI [11.80-14.40]
Average ICU Score (SD)	26.14 (8.47)	.95CI [24.10-28.20]

*Note:* The APSD refers to the Antisocial Process Screening Device and the ICU refers to the Inventory of Callous-Unemotional Traits; both questionnaires assess antisocial personality features and callousness/unemotionality in youth under 18. Two separate one-sample t-tests revealed that average APSD and ICU total scores were not significantly different than scores reported by other justice involved youth in previous research (Dillard, Salekin, Barker & Gimes 2013; Kimonis, Kennealy & Goulter, 2016).

Table 6.  
*Criminal offense history information for participants in Experiment 3*

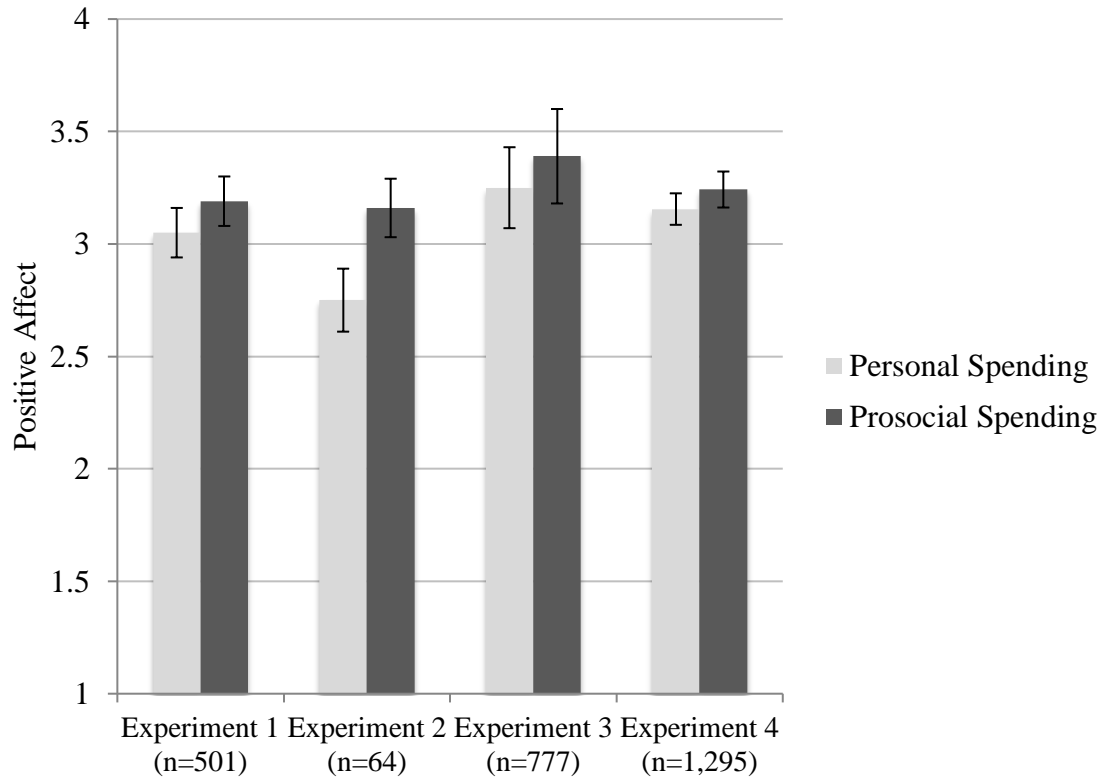
	<i>n</i>
Aggravated theft (robbery)	52
Burglary	69
Common theft	136
Drug related offenses	285
Fraud	194
Homicide	27
Motor vehicle theft	81
Personal attack (domestic violence, assault, weapon)	171
Personal larceny	67
Sex offense (assault, rape, indecent exposure)	78
Vandalism	103
Average Tri-PM Total score (SD)	39.94 (22.11) ** .95CI [138.00-141.00]
Average Tri-PM Meanness (SD)	38.65 (10.85) ** .95CI [37.90-39.40]
Average Tri-PM Disinhibition (SD)	49.04 (11.57) ** .95CI [48.20-49.90]
Average CAPP (SD)	70.94 (21.13) .95CI [69.50-72.40]

*Note:* TriPM refers to the Triarchic Psychopathy Measure and CAPP refers to the Comprehensive Assessment of Psychopathic Personality; scales assess antisocial and psychopathic personality features. \*\* indicates that this average score was significantly higher than community sample reported in previous research (Drislane, Patrick & Arsal, 2014). Average CAPP responses could not be compared to community samples because this information is not available in the literature. Crimes sum to more than 777 because several participants reported engaging in more than one behavior.

Table 7.  
*Criminal offense history information for participants in Experiment 4*

	<i>n</i>
Aggravated theft (robbery)	138
Burglary	126
Common theft	345
Drug related offenses	528
Fraud	360
Homicide	75
Motor vehicle theft	147
Personal attack (domestic violence, assault, weapon)	294
Personal larceny	145
Sex offense (assault, rape, indecent exposure)	134
Vandalism	196
Average Tri-PM Total score (SD)	53 (21.73) ** .95CI [138.00-141.00]
Average Tri-PM Meanness (SD)	41.89 (11.78)** .95CI [41.20-42.50]
Average Tri-PM Disinhibition (SD)	48.03 (11.03)** .95CI [47.40-48.60]
Average CAPP (SD)	73.77 (22.30) .95CI [72.60-75.00]

*Note:* TriPM refers to the Triarchic Psychopathy Measure and CAPP refers to the Comprehensive Assessment of Psychopathic Personality; scales assess antisocial and psychopathic personality features. \*\* indicates that this average score was significantly higher than community sample reported in previous research (Drislane, Patrick & Arsal, 2014). Average CAPP responses could not be compared to community samples because this information is not available in the literature. Crimes sum to more than 1,295 because several participants reported engaging in more than one behavior.



*Figure 1.* Means for personal and prosocial spending conditions in Experiments 1-4. Error bars display 95% confidence intervals around the mean.

**Endnotes**

---

<sup>i</sup> The main effect of condition is significant,  $F(1,844) = 4.11$ ,  $p = .04$ , when impression management and self-deceptive enhancement are included as covariates and weakens slightly when covariates are removed,  $F(1,846) = 3.50$ ,  $p = .06$ .

<sup>ii</sup> When personal opt-outs are excluded results remain unchanged,  $t(749) = -2.15$ ,  $p = .03$ .