



Variations of the Psychopathic Stress Response

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Abstract

Psychopathy is a personality disorder characterized by antisocial traits such as callousness, grandiosity, manipulativeness, irresponsibility, and superficial charm. These traits can be expressed in different ways, depending on the individual, due to genetic and environmental differences. Likewise, psychopathy is thought to lie on a continuum throughout a given population. One factor that might drive the variability found in psychopathy is the stress response. Psychopathy is associated with little emotionality, fearlessness, and a low response to stress. However, studies on whether psychopaths show a reduced autonomic/somatic stress response have been conflicting; some studies do confirm that psychopaths have a lowered stress response, while others suggest they do not. Recent research has found that the type of psychopathy—Primary or Secondary—predicts the type of stress response that is expressed. By assessing a nonincarcerated, college campus sample, this study was conducted in order to replicate previous research that indicated Primary psychopathy is associated with a reduced autonomic stress response. The Levenson Self-Report Psychopathy Scale was used to assess psychopathy and the Perceived Stress Scale, as well as the Somatic Stress Scale, were used to evaluate the amount and type of stress that a participant was feeling. Results indicated that there was no correlation between overall scores of psychopathy and perceived stress. Correlations run between overall scores of psychopathy and somatic stress symptoms indicated a positive correlation that approached significance. Finally, no correlation was found between Primary psychopathy scores and somatic stress scores. The findings of this research could have been influenced by characteristics of the sampled population and study limitations.

Keywords: Psychopathy, stress, somatic, autonomic, perceived

Psychopathy as we know it today was first documented by Cleckley in his 1941 book, *The Mask of Sanity*, and followed by Hare (1991), who developed what has now become the gold standard for assessing the disorder, The Psychopathy Checklist—Revised (PCL-R) (Kiehl, 2015). Hare’s checklist was developed based on some of Cleckley’s original findings (see Appendix A for the full list) and from his own research on psychopathy. This checklist established the key symptoms of the disorder including pathological lying, manipulateness, lack of guilt or remorse, callousness, parasitic lifestyles, and criminal versatility (see Appendix B for the full checklist) (Hare, 1991). Despite new measures that have been developed since the PCL-R, it still remains the most reliable, relevant, and pervasive test.

Psychopathy is not a new disorder, but the way it has been defined and consequently measured is in flux (Patrick, 2018). It is becoming increasingly apparent that many, if not all, mental illnesses, including psychopathy, do not manifest in the same degree (Patrick, 2018; Wang, 2019). Additionally, psychopathy seems to be a multidimensional construct that can be broken up into two, three, and four factor models. The multidimensionality of psychopathy calls into question current diagnostic procedures and measures of assessment, which typically measure a single construct (Sellbom, Lilienfeld, Fowler, & McCrary, 2018).

The original, two-factor model of psychopathy is broken down into interpersonal-affective (Factor 1) and impulsive-antisocial (Factor 2) traits (Thomson et al., 2018). The three-factor model breaks psychopathy down into three dimensions—callous unemotionality (e.g., remorselessness, low empathy), grandiose manipulation (e.g., superficial charm, narcissism), and impulsive irresponsibility (e.g., impulsiveness, thrill seeking) (Fanti et al., 2017). The four-factor model includes Interpersonal (Factor 1), Affective (Factor 2), Lifestyle (Factor 3), and Antisocial (Factor 4) categories (Hare, 1991). Essentially what each model attempts to do is break down psychopathic traits to better explain the disorder. Addressing the different models is crucial; depending on how one breaks psychopathy down, it affects the validity of different measures (e.g., Psychopathy Checklist-Revised, Psychopathic Personality Inventory). Recent research has also suggested that having a greater number of traits in a certain factor can mask the expression of traits in another (Benning, Venables, & Hall, 2018).

Factor 1 (primary) and Factor 2 (secondary) characteristics deserve further explanation as the two-factor model was used for this research. Factor 1 traits include the core personality traits associated with psychopathy such as lack of guilt or remorse, manipulateness, superficial charm, and shallow affect (Glenn & Raine, 2016). Factor 2 traits are those associated with the antisocial lifestyle that psychopaths tend to exhibit such as criminal versatility, juvenile delinquency, impulsivity, and poor behavioral controls (Glenn & Raine, 2016). Individuals with psychopathy who have mostly Factor 1 traits are known as

“primary” psychopaths and those with mostly Factor 2 traits are known as “secondary” psychopaths. The two-factor model was chosen for this research due to its relevance to primary and secondary psychopathy.

Research into psychopathy provides a stark example of how having a mental illness might lead to different life outcomes due to the variable nature (e.g., multiple factors and interaction effects) of the disorder. For example, the psychopath with mostly Factor 1 traits exhibits different behaviors than the one who has mostly Factor 2 traits. The psychopath who is diagnosed with an additional mental illness can be drastically different than those who are not. These individuals could turn out to be a corporate executive, a gang leader, or a serial killer (Hickey et al., 2018). The interaction of multiple constructs that lead to different outcomes associated with the disorder raises the question of whether there are subtypes of psychopathy.

One proposed subtype is a group of people who have more psychopathic traits than population norms but do not qualify for a diagnosis; they are often called subclinical psychopaths (Benning et al., 2018). If psychopathy as a disorder is thought to be on spectrum, these individuals are on the lower end, but above the general population. To some degree, everyone can exhibit psychopathic behaviors that can be used to assess whether specific traits or a particular score on a measurement is correlated with specific outcomes (e.g., type of autonomic stress response). The current study was completed in order to assess how the number of psychopathic traits one has may lead to a different response to stress. Additionally, it compared Factor 1 and Factor 2 of the two-factor model to determine if having more traits in one factor over the other led to a different physiological response to stress.

Successful Psychopathy

Citing Cleckley in “Without Conscious,” Hare (1999) writes that the only reason some psychopaths are able to pass as “normal” is because they are better able to hide their true nature. He goes on to say that subcriminal (i.e., successful) psychopaths are as manipulative, callous, and apathetic as psychopaths who are behind bars for their crimes; however, he also points out that their intelligence, family background, social skills, and life circumstances gives them an advantage (Hare, 1999). In other words, social factors shape the behaviors of a psychopath and those behaviors are what lead to life outcomes.

Psychopaths with mostly Factor 1 traits (in reference to the two-factor model) are the ones that are most likely to be considered successful psychopaths (Glenn & Raine, 2016). Glenn and Raine (2016) summarized the following definitions that have been used to define successful psychopathy. Successful psychopathy has been defined as a person that (a.) has a score high in psychopathy but has never been convicted of a crime, (b.) has a score high in psychopathy but is not incarcerated, (c.) has psychopathic traits and high social status, or (d.) is a serial killer and has escaped detection for a long period of time.

It has been established that self-report measures of psychopathy in non-incarcerated samples of the general population are predictive of individual variation in self-reported antisocial behavior. The studies show that self-report is a valid way to assess psychopathy and that the data collected can apply to psychopathy in general (Sellbom et al., 2018). As in this research, one way to recruit successful psychopaths is to use college student samples because pursuing a higher education is often associated with a degree of success (Glenn & Raine, 2016). Put differently, college samples may be a way of tapping into a population that is considered “successful” and therefore “successful psychopaths” may be present in that population. Since successful psychopaths are the ones most likely to express Factor 1 traits, one strategy to evaluate whether Factor 1 traits lead to a reduced autonomic response would be to use a college sample.

Psychopathy and Stress

Fearlessness and a lowered stress response have been attributed to psychopathy for as long as the disorder has been recognized. It is one of the central symptoms of the disorder and one from which antisocial behavior seems to stem (Thomson et al., 2018). Usually, stress and the body’s response to it contributes to changes in behavior. Feeling stressed, as well as other cognitive phenomena (e.g., feelings of shame, remorse, and embarrassment) associated with committing antisocial behavior or societally unacceptable actions often serve as punishments which teach an individual not to repeat that behavior (Gazzaniga, Ivry, Mangun, & Steven, 2009).

Uncomfortable and painful emotions (such as stress) tag memories of behaviors and make them easier to recall and serve as incentive not to repeat that behavior (Gazzaniga et al., 2009). For example, if the average person broke someone’s toy and felt bad for doing so, he would remember that it is not good to repeat that behavior. Next time, he will make sure to be careful when playing with other people’s things. If a psychopath comes along and breaks that same toy, she is not going to feel remorse like other people normally would. She will have no uncomfortable feelings, will not tag the memory of the event as salient, and will most likely keep repeating the behavior.

There are two parts to stress. One part is the actual perception of the stress and the other is the autonomic (somatic) response to stress. The autonomic response to stress has been the main focus of research concerning psychopathy. Despite the established connection between psychopathy and dulled stress responses, the evidence for it has been mixed (Thomson et al., 2018), with some studies confirming the lowered stress response while others indicate the stress response is normal.

Typically, the studies were conducted by measuring heart rate, blood pressure, skin conductance, and/or eye movements which have all been implicated in the autonomic stress response (Thomson et al., 2018). When a stressor is presented, the typical response would be a quickened heart rate,

increased blood pressure, faster skin conductance, and rapid eye movements (Glenn & Raine, 2016). If psychopaths truly do not feel stress the same way that most people do, changes in these measurements should not be seen.

The intertwined and reciprocal relationship of the sympathetic nervous system (SNS) and the parasympathetic nervous system (PNS) control the stress response. The SNS prompts the typical stress response (e.g., sweating, increased heart rate, slowed digestion) and the PNS is the opposite: it is the system that calms the body down. During stress, these systems work together to produce the correct stress response by increasing the SNS and decreasing the PNS resulting in the overall increase of activity by the SNS. Once the stressor is taken care of, the SNS decreases and the PNS increases. Nonreciprocal stress responses (e.g., coinhibition, coactivation) result in unclear arousal states. One theory for what causes the low stress responses found in unemotional individuals could be that neither the SNS nor PNS is activated.

Lack of stress, in particular, enables psychopaths to do things that most people would find unacceptable or uncomfortable (e.g., committing serious crimes, manipulating, and lying) (Hickey, Walters, Drislane, Palumbo, & Patrick, 2018). Psychopaths respond differently than controls when presented with disturbing images (Glenn & Raine, 2016) and upon reading emotionally charged words such as “murder” or “hate” (Kiehl, 2016). Comparatively, their brains will show less activity in areas associated with emotions, such as the amygdala (Kiehl, 2016).

One explanation for the discrepancies between studies has proposed that Primary psychopathy is associated with the lowered stress response, while the Secondary psychopathy is not (Thomson et al., 2018). Recall that Primary psychopathy is associated with Factor 1 traits and Secondary psychopathy is associated with Factor 2 traits. People with mostly secondary traits tend to be hot-headed and are more likely to have run-ins with the authorities (Benning et al., 2018). This makes sense considering these individuals exhibit more antisocial behaviors. These people are more impulsive and are less likely to beat a polygraph test, which uses skin conductance and heart rate to determine if someone is lying.

On the other hand, people who are high in Primary psychopathy are more calculated. There is evidence that Primary psychopathy traits are determined by genetics and that Primary psychopathy is more biologically based, which could explain why it is associated with abnormal autonomic stress responses (Benning et al., 2018). Primary psychopaths are more adept at concealing their true nature and tend to go undetected for longer, which often times mean they are “successful” psychopaths (Hare, 1999). These individuals are more likely to be of above- average intelligence, charming, educated, and strategic (Hickey et al., 2018). The best examples of Primary psychopaths are serial killers who manage to remain free for extended periods of time such as Ted Bundy, Edmund Kemper, and John Wayne Gacy (Hare, 1999). They were partially able to stay free due to

their calmness and quick thinking under pressure.

Thomson, et al. conducted an experiment using college students to assess psychopathic traits and autonomic stress responses while playing a virtual reality horror game (2018). Their findings indicate that the participants who had more Primary (Factor 1) psychopathy traits exhibited reduced autonomic activity. Coinhibition of the parasympathetic and sympathetic nervous system responses predicted Primary psychopathy. The coinhibition prevents a stress response from occurring which could explain why psychopaths exhibit poor social learning as well as engaging in dangerous and risky behaviors.

Secondary psychopathy was predicted by high parasympathetic nervous system activity implying that there is an imbalance between the PNS and SNS activity, and researchers suggest this could indicate a vulnerability to emotion dysregulation. The results of this study provide evidence that Primary psychopaths are fundamentally different than Secondary psychopaths.

A Note about Psychopathy and Self-Report

Psychopaths are known for their grandiosity, lying, and manipulating. Based on this reputation, it seems pointless and foolish to try to measure the disorder using self-report assessments. However, researchers have found that psychopaths lie on self-reports at the same rate as the general population (Sellbom et al., 2018). There are three main misconceptions about the usefulness of measuring psychopathy with self-report assessments (Sellbom et al., 2018).

The first misconception is that the validity of a self-report measure rests on truthful responses and, due to psychopaths being liars and lacking self-insight, self-reports are useless (Lilienfeld, 1994). Researchers often assume that there is nothing to learn from inaccurate responses, but that is not always the case. The responses may not be accurate due to lack of self-insight, but they could still indicate something about the population that is being sampled since it still reveals how the participants feel. Furthermore, research suggests that lack of insight is unlikely to pose significant problems to the accuracy of self-report measures (Sellbom et al., 2018).

Secondly, psychopaths will answer questions inaccurately given their goal of positive impression management (socially desirable answers) (Sellbom et al., 2018). Theoretically, these psychopaths would try to figure out the socially acceptable answer in order to hide their antisocial behaviors. Current research findings indicate that the opposite is true—psychopaths provided responses that were slightly negatively correlated to social desirability (Lilienfeld, 1994). One reason for this could be that a psychopath may have a different idea of what behaviors are socially acceptable (Sellbom et al., 2018). For example, a psychopath might indicate that they lie to get to what they want (thinking that this is socially acceptable), when most people would respond that it is socially unacceptable to do so. In a roundabout way, this is one way why their self-report measures tend to be accurate.

The third misconception is that psychopaths are successful at manipulating their responses on self-report assessments (Sellbom et al., 2018). There is no evidence to suggest that psychopaths are any better at manipulating their responses than the general population (Sellbom et al., 2018). However, there are extreme and memorable instances of this not being the case such as when psychopathic murderers Edmund Kemper (Douglas, 1995), Rodney Alcala (Lang & Pattin, 2020), and Ted Bundy (Rule, 2018) were able to anticipate and tailor their responses to appear “normal.” The vast majority, however, do not have such skill, but, due to the representative heuristic, many assume that all psychopathic individuals have this ability.

Research Questions and Hypotheses

RQ1: Does having more psychopathic traits lead undergraduates/graduate students to experience less stress? This research question was proposed in order to add to the existing literature that the stress response is muted in psychopathic individuals while also addressing the need for more research on psychopaths who are not institutionalized.

H1: As the number of psychopathic traits increases, amount of perceived stress will decrease. It was hypothesized that due to the established link between psychopathy and the reduced stress response that those with psychopathic traits—as opposed to full-blown psychopathy—will report less perceived stress.

RQ2: Are primary traits of psychopathy associated with less somatic symptoms of stress? This research question was investigated in order to replicate the findings from previous studies that reported individuals with Primary (Factor 1) psychopathy show reduced autonomic nervous system reactions to stress.

H2: As the number of Primary psychopathic traits increase, the amount of self-reported somatic symptoms will decrease. Based on the findings of Thomson et al. (2018), it was hypothesized that individuals with more Factor 1 traits would experience less somatic symptoms of stress.

Methods

Participants

Of the 235 participants in this study, 168 were female (71.5%) and 67 were male (28.5%); participants also reported their gender identities as either a woman (69.4%), man (28.1%), genderqueer/gender non-conforming (2.1%), and trans-man (.4%). The survey indicated that participants should be either undergraduate or graduate students; 219 were undergraduate students (93.2%), and 16 were graduate students (6.8%). There were 18 participants who indicated

that they were neither undergraduate nor graduate students, provided invalid responses, or failed two or more attention checks. These responses were not included in this report.

The average age was 20.75 with a standard deviation of 4.28. The most common ethnicity of the participants identified as white (189, 80.4%). On an optional portion of the survey, 35 (14.9%) participants responded that they participated in illegal activity (with the exception of illegal drug use). This part of the survey also asked about the top three stressors that they are currently experiencing. The stressor that was indicated most frequently was school or activities related to school.

Procedure

Participants were recruited through campus email, social media, and word of mouth, totaling 235 participants. Several social media sites, including Instagram, Snapchat, Facebook, and Reddit, were used. Participants were asked if they could ask their acquaintances to take the survey as well. Extra credit was offered to Monmouth College students, but otherwise there was no compensation. The survey was also promoted through campus email and by professors. Attention check questions (e.g., “please select option X”) were placed intermittently throughout the survey in order to check if the participants were providing valid responses by reading the questions or statements. If someone selected the wrong item associated with these questions (e.g., selected Y instead of X), the responses were not included in the overall analyses.

Participants accessed a Google Forms survey by clicking on the link that was provided. They were surveyed on their current levels of somatic and perceived stress as well as the number of psychopathic traits they expressed. The survey was completed unsupervised without time or place restrictions. Completion of the study was estimated to take 15 minutes or less. Participants were asked to complete three psychological measures and demographic questions. Optional questions were included, asking for their top three stressors and indicating if they had ever participated in criminal activity.

Measures

Psychopathic traits were measured via the Levenson Self-Report Psychopathy (LSRP) Scale (see Appendix C for the full scale). The LSRP was created by Levenson and colleagues to assess psychopathy in non-institutional samples (Levenson, Keihl, & Fitzpatrick, 1995). It consists of 26 items on a 4-point response format, which are divided into two subscales—one for Primary psychopathy and another for Secondary psychopathy, falling respectively under Factor 1 and Factor 2 parts of the assessment. Examples of Factor 1 items on the scale include “I enjoy manipulating other people’s feelings,” and “For me, what’s right is whatever I can get away with.” Factor 2 items include “I am often bored,”

and “I don’t plan anything far in advance.” For the Primary scale, Levenson and colleagues (1995) reported adequate internal consistency (Cronbach’s alpha = .82). The Secondary scale was found to have marginal internal consistency (alpha = .63) (Sellbom et al., 2018).

Overall stress was measured using the Perceived Stress Scale. The Perceived Stress Scale, developed by Cohen, Kamarck, and Mermelstein (1983), was created to assess perceived stress of the general population. It was specifically designed to assess how respondents perceive how unpredictable, uncontrollable, and overloaded their lives may be (see Appendix D for the complete scale) (Cohen, Kamarck, Mermelstein, 1983). Validity of this scale has been demonstrated; high PPS scores were associated with failure to quit smoking, diabetics’ inability to control blood sugar levels, and greater vulnerability to experience stress induced depressive symptoms (Cohen, 1988). For each of the 10 items the respondent is asked how often they felt a given way on a five-point scale. The higher the score, the more the respondent perceives stress in their lives.

Somatic stress was measured by using the Somatic Stress Scale–8 (SSS–8). The SSS–8 was developed by Gierk and colleagues (2014) to measure the burden of somatic symptoms that a given person may be feeling. The scale has demonstrated good reliability (Cronbach’s alpha = .81). The scale is not specifically for stress, but it is often used to assess it. Participants were asked to indicate how often they experienced somatic symptoms in the last seven days; options to respond with were “Not at all,” “A little bit,” “Somewhat,” “Quite a bit,” and “Very much.” Examples of the 10 items that make up the scale include “Stomach or bowel problems” and “Back pain” (see Appendix E for the complete list of symptoms).

Results

The goal of this correlational study was to replicate previous findings that psychopathy is associated with a reduced stress response. The relationship between Primary psychopathy and a reduced autonomic (somatic) stress response was also examined. Participant scores from the Levenson Self-Report Psychopathy (LSRP) Scale ($M = 22.77$, $SD = 9.15$) were correlated with participant scores on the Perceived Stress Scale (PSS) ($M = 22.77$, $SD = 3.60$) and the Somatic Symptom Scale - 8 (SSS–8) ($M = 11.79$, $SD = 6.02$). Additionally, scores from the Primary psychopathy portion of the LSRP ($M = 19.00$, $SD = 4.43$) were correlated with SSS–8 scores. The PSS was used to assess overall stress and the SSS–8 was used to evaluate somatic stress responses.

There was not a significant relationship between LSRP scores and PSS scores ($r = 0.103$, $p = 0.116$). This result does not support the previously established connection between psychopathy and reduced stress responses. Instead, this result seems to replicate previous findings that suggest a reduced stress response is not present in all psychopathic individuals.

The correlation between LSRP scores and SSS-8 scores approached significance ($r = 0.127, p = 0.052$). This analysis does seem to support a potential connection between psychopathy and the somatic stress response. However, this result is a positive correlation and does not support the hypothesis that as LSRP scores increase, SSS-8 scores decrease (i.e., as psychopathy increases, somatic stress will decrease). When participant scores from only the Primary psychopathy items of the LSRP were correlated with SSS-8 scores, there was not a significant relationship ($r = -0.008, p = 0.905$). This result does not support the hypothesis that high Primary psychopathy scores are associated with lower somatic stress scores.

Responses in regard to criminal activity were coded in order to run a correlation between participating in criminal activity and LSRP scores. The results showed a strong positive correlation ($r = 0.240, p = 0.000$), as scores on the LSRP increased the more likely someone had participated in criminal activity. This result is in concordance to established research findings on psychopathy and diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders - 5 (DSM-5) (American Psychiatric Association, 2013).

Discussion

This research was conducted in order to replicate and clarify the connection between psychopathic traits and reduced stress responses. First, the hypothesis that a greater number of psychopathic traits would be correlated with reduced perceived stress was tested. The results indicated that there was not a significant relationship between the two. Second, the hypothesis that a greater number of Primary psychopathic traits would result in lower somatic symptoms related to stress was tested. When both Primary and Secondary traits were included the results approached significance in a positive direction, suggesting that there is a relationship between LSRP scores and somatic symptoms. However, the results show a positive correlation indicating that as the overall LSRP (Primary and Secondary) scores increase, so do the number of somatic symptoms associated with stress. When hypothesis two (that the number of positive traits will increase as somatic symptoms decrease) was tested there was no significance and no relationship. Given that somatic symptoms did not decrease when only Primary traits were used (as opposed to the correlation that was run with total LSRP scores) suggests that Primary traits are not related to a lowered somatic stress response. Finally, when LSRP scores were correlated with whether someone committed a criminal act (with the exception of drug use), the results indicated that there was a strong, positive connection between the two. This result reaffirms that, as the number of psychopathic traits increases, an individual is more likely to have engaged in criminal activity. It also served as a way to make sure the LSRP was valid and reliable when used to assess the college sample.

There are several factors that could have influenced the results of the study. Even though the results are contrary to the hypotheses and some of the past psychopathic research studies, there is still valuable information that can be used to confirm other aspects of psychopathy.

The sample used for this research was made up of a disproportionate number of women (71.5%). Psychopathy is a disorder that is primarily found in men (Glenn & Raine, 2016). Women can have psychopathy and psychopathic traits, but it occurs far less often (Verona & Vitale, 2018). This might explain why the number of psychopathic traits in this study did not predict a reduced stress response.

Another reason why the results could have occurred is due to the availability of psychopaths or people with a great number of psychopathic personality traits in the population that was sampled. Psychopathy is a rare disorder in the general population and when the population is even more specific (e.g., corporate executives, prisoners, college students) the results of the studies can produce different results. Samples from incarcerated populations are more likely to be made up of psychopaths or sub-clinical psychopaths, thus influencing the results. It is well established that there is a disproportionate number of psychopaths in the prison system than any other population (Glenn & Raine, 2016). This makes sense in relation to the symptoms of the disorder (e.g., criminal versatility, irresponsibility, impulsiveness, callousness). Psychopaths are more likely to commit antisocial acts, and many of them are caught and incarcerated due to their tendency to commit particularly violent crimes (Hickey et al., 2018).

This study used individuals attending undergraduate and graduate schools which decreases the likelihood that psychopathic individuals were included. As mentioned previously, higher education is often used to define who is considered successful. It undoubtedly requires a certain amount of discipline, social skills, and responsibility to attend college. Successful psychopaths are rare and are notoriously hard to find in terms of research participants in a sample (Benning et al., 2018). Taking into consideration the rarity and difficulty in recruiting non-incarcerated, successful psychopaths, it makes sense that they are less likely to make up a sample from a college population. In general, it also makes sense that the number of psychopathic traits in individuals attending college would be lower.

The results of this study still further the understanding of psychopaths. When put into this context, the research could be used as support for other aspects of psychopathy. For example, since there was a disproportionate number of women in this study the results can be used to confirm that psychopathy is more prevalent in men. It is also contributing to the goal of assessing psychopathy in non-incarcerated samples.

Limitations

One of the major limitations that applies to many studies about psychopathy, not just this one, is the quality of self-report measurements. There has long been a debate about whether self-report measures should be used to assess psychopathy in general. The current measurements are not able to account for the multidimensionality of the disorder, thus making it difficult to get accurate data about the disorder. The LSRP is one of the many flawed self-report measures as it only addresses Primary and Secondary psychopathy (Sellbom et al., 2018). Researchers of psychopathy debate whether items concerning Secondary psychopathy should be included in the self-report measures used for non-incarcerated populations. Including the Secondary characteristics, which address the criminality aspect of psychopathy, could make the traditional measures more biased towards psychopaths who are incarcerated and result in inaccurate data of psychopaths who are not incarcerated (Sellbom et al., 2018). When assessing a non-incarcerated population, the results of using the self-reports may not be accurate due to including items of Secondary psychopathy.

This study had a relatively small sample size that was not representative of the population. There were disproportionate numbers of females, undergraduates, and people who identified as white. Most of the responses came from the same college campus, therefore making the sample not representative of all college campuses. These issues within the sample mean results cannot be generalized to the entire population.

As another limitation to this study, other outside stressors were not controlled for and thus could have influenced the results. However, this data was not collected during a particularly stressful time in the semester. Data collection did, however, begin when the COVID-19 pandemic was first spreading but before everything was shut down because of it. To what degree, if any, the pandemic impacted the stress of participants cannot be quantified or analyzed.

Most research on psychopaths and stress responses is done by monitoring indicators of an activated stress response (e.g., measures of heart rate, blood pressure, eye movement, and the galvanic skin response) during a stressful event. This study did not actively measure an induced stress response in the moment. Instead, scales measuring perceived stress and somatic symptoms were used to assess the stress response. Given the methods of measurement used in this study, it cannot be used as a direct comparison to other studies. The somatic stress response can be acute and chronic. Acute stress produces different outcomes than chronic stress. The SSS-8 addresses more items related to chronic stress (e.g., trouble sleeping, digestive issues, back and joint pain, fatigue) versus acute stress (e.g., dizziness, shortness of breath).

Next steps

It is imperative that new measures of psychopathy address the multidimensionality of the disorder. Older measures could be contributing to the

mixed results found in psychopathy research by not accounting for variations of psychopathy (e.g., Primary psychopathy, Secondary psychopathy, successful psychopathy, subclinical psychopathy). An example of the current measures contributing to mixed results is the difference in autonomic stress responses of Primary psychopaths and Secondary psychopaths. It is also important to keep studying psychopathy in non-incarcerated populations in order to understand how different factors can contribute to the expression of psychopathy. Non-incarcerated psychopaths could be used to examine protective factors that differentiate successful psychopaths from their criminal counterparts. If protective factors are identified, they could be used as a means to reduce the probability of someone developing psychopathy.

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Appendix A

Cleckley's 16 Diagnostic Criteria for Psychopathy

1. Superficial charm and good "intelligence"
2. Absence of delusions or other signs of irrational thinking
3. Absence of "nervousness" or psychoneurotic manifestations
4. Unreliability
5. Untruthfulness and insincerity
6. Lack of remorse or shame
7. Inadequately motivated antisocial behavior
8. Poor judgement and failure to learn by experience
9. Pathological egocentricity and incapacity for love
10. General poverty in major affective reactions
11. Specific loss of insight
12. Unresponsiveness in general interpersonal relations
13. Fantastic and uninviting behavior with drink and sometimes without
14. Suicide rarely carried out
15. Sex life impersonal, trivial, and poorly integrated
16. Failure to follow any life plan

Appendix B

Hare's Psychopathy Checklist—Revised

1. Glibness/superficial charm
2. Grandiose sense of self-worth
3. Need for stimulation
4. Pathological lying
5. Conning/manipulative
6. Lack of remorse or guilt
7. Shallow affect
8. Callous/lack of empathy
9. Parasitic lifestyle
10. Poor behavioral controls
11. Promiscuous sexual behavior
12. Early behavioral problems
13. Lack of realistic, long-term goals
14. Impulsivity
15. Irresponsibility
16. Failure to accept responsibility
17. Many failed marital relationships
18. Juvenile delinquency
19. Revocation of conditional release
20. Criminal versatility

Appendix C

Levenson Self-Report Psychopathy Scale (LSRP)

Primary Psychopathy

1. Success is based on survival of the fittest; I am not concerned about the losers.
2. For me, what's right is whatever I can get away with.
3. In today's world, I feel justified in doing anything I can get away with to succeed.
4. My main purpose in life is getting as many goodies as I can.
5. Making a lot of money is my most important goal.
6. I let others worry about higher values; my main concern is with the bottom line.
7. People who are stupid enough to get ripped off usually deserve it.
8. Looking out for myself is my top priority.
9. I tell other people what they want to hear so that they will do what I want them to do.
10. I would be upset if my success came at someone else's expense.
11. I often admire a really clever scam.
12. I make a point of trying not to hurt others in pursuit of my goals.
13. I enjoy manipulating other people's feelings.
14. I feel bad if my words or actions cause someone else to feel emotional pain.
15. Even if I were trying very hard to sell something, I wouldn't lie about it.
16. Cheating is not justified because it is unfair to others.

Secondary Psychopathy

17. I find myself in the same kinds of trouble, time after time.
18. I am often bored.
19. I find that I am able to pursue one goal for a long time.
20. I don't plan anything very far in advance.
21. I quickly lose interest in tasks I start.
22. Most of my problems are due to the fact other people just don't understand me.
23. Before I do anything, I carefully consider the possible consequences.
24. I have been in a lot of shouting matches with people.
25. When I get frustrated, I often "let off steam" by blowing my top.
26. Love is overrated.

Appendix D

Perceived Stress Scale

1. In the last month, how often have you been upset because of something that happened unexpectedly?
2. In the last month, how often have you felt that you were unable to control the important things in your life?
3. In the last month, how often have you felt nervous and “stressed”?
4. In the last month, how often have you felt confident about your ability to handle your personal problems?
5. In the last month, how often have you felt that things were going your way?
6. In the last month, how often have you found that you could not cope with all the things that you had to do?
7. In the last month, how often have you been able to control irritations in your life?
8. In the last month, how often have you felt that you were on top of things?
9. In the last month, how often have you been angered because of things that were outside your control?
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

Appendix E

Somatic Symptom Scale

1. Stomach or bowel problems
2. Back pain
3. Pain in your arms, legs, or joints
4. Headaches
5. Chest pain or shortness of breath
6. Dizziness
7. Feeling tired or having low energy
8. Trouble sleeping