Delinquent Perfectionists: A Study of the Interaction between Strain and Perfectionism on Deviant Behavior among College Students

by

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ABSTRACT

Academic deviance is a potentially detrimental behavior for students and universities alike in that it causes credit to be given to individuals where it is not due. Furthermore, it is a common occurrence, with around half of college students admitting to engaging in this behavior at least once. Therefore, the purpose of this study is to investigate the relationship between perfectionism, strain, and academic deviance. In doing this, this study uses data from a primary data collection effort in Arizona State University, with a final sample of 696 students, to answer three research questions: Are there differences in the likelihood of engaging in academic deviance by maladaptive perfectionists, adaptive perfectionists, and non-perfectionists? Are there differences in the perceptions of the wrongness of academic deviance between maladaptive perfectionists, adaptive perfectionists, and non-perfectionists? Are there differences in how context dependent maladaptive perfectionists, adaptive perfectionists, and non-perfectionists view academic deviance the wrongness of academic deviance? Ordered logistic regression are used to access these research questions. Results suggest that neither perfectionism nor strain were a significant factor in determining the likelihood that a participant would engage in an academically deviant behavior, or how wrong they believed that behavior to be. However, perfectionism did seem to have a mild impact on how context dependent individuals felt the wrongness of their behaviors, meaning that if the cause of the strain was due to the professor's actions, students viewed academic deviance as less wrong, and self-control explained at least part of this effect. Strain, on the other hand, did not have a significant effect. Overall, the results suggest some legitimacy to the use of general strain theory to explain the potential relationships, given the relationship between perfectionism

and context dependency. Additionally, the results support policy implications designed to reduce maladaptive thoughts and subsequently academic deviance, such as cognitive behavioral therapy (CBT). Future research should examine the link between perfectionism and other types of academic strain.

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Introduction

Among college students, around half admit to cheating at least once, and of those, another half admit to doing so multiple times (Davis & Ludvigson, 1995). This in turn causes many negative consequences for institutions of higher learning. For example, such behaviors may prevent instructors from accurately assessing students' abilities and knowledge, resulting in these students entering the workforce in positions they are not qualified for. These potential negative impacts imply a clear incentive for universities to reduce these behaviors to mitigate the risks. However, despite universities' best efforts to discourage academic deviance, there are no signs that the behaviors are decreasing (Davis & Ludvigson, 1995; Davis et al., 2015). Furthermore, although there is considerable research into the covariates of academic dishonesty (e.g., ethics and morality, perception of punishments, and peer influences), there are still many potential covariates whose effects are not yet known. For example, although in more recent years researchers have begun to address the effects of personality traits (e.g., self-control and narcissism), many other traits have not yet been studied. One such trait is perfectionism.

Perfectionism is a personality trait in which individuals strive to perform at or above certain standards they set for themselves (Slaney et al., 2001). Although many perfectionists are able to perform at the level they set, not all perfectionists feel they can reach their own standards. Those who believe they can reach their own standards are referred to as adaptive or personal standards perfectionists, whereas those who do not are known as maladaptive or self-critical perfectionists (Slaney et al., 2001; Yang et al., 2016). Maladaptive perfectionists experience many negative effects, including increased fear of failure, negative affect, anxiety, and depression. They are also more likely to use

maladaptive coping strategies when attempting to handle daily stressors (Levine et al, 2017), and they often have an exaggerated negative response and more aggressive behavior towards themselves and others when they receive negative feedback (Chester et al., 2015).

These negative effects may, in turn, cause these individuals to engage in deviant behavior at an increased rate (Levine et al., 2017). Additionally, they may use deviance as a means to reach the standards that they have not been able to through conventional means. This potential relationship is supported by the ideas of general strain theory, which state that individuals may engage in crime to alleviate strain (Agnew, 2014). For example, if someone feels they cannot pass a test no matter how hard they study, they may choose to cheat in order to achieve their desired grade. In this case, the strain would be reduced by reaching their standards. Individuals may also use crime to alleviate the negative emotions related to strain, such as using illegal drugs to help cope with the stress of college (Agnew, 2014).

While there is theoretical support for the connection between perfectionism and deviance or delinquency, there has not yet been a study specifically looking at levels of perfectionism and engagement in academically deviant or delinquent behaviors. Bieling and colleagues (2003) examined several negative outcomes of perfectionism in schools but did not include academic dishonesty. However, studies have examined the role of some other personality factors such as self-control (Bolin, 2004; Bichler-Robertson et al., 2003; Reisig & Pratt, 2011) and narcissism (Brunell et al., 2011; Menon & Sharland, 2011).

The relationship between perfectionism, strain, and academic dishonesty is important to understand within the university setting, as many studies have tested perfectionism in college students and found links between stress, perfectionism, and negative mental health outcomes (Richardson & Rice 2015; Rice et al., 2012; Arslan et al., 2010). These links may mean that individuals who are maladaptive perfectionists are more likely to engage in deviant behaviors such as academic dishonesty or negative coping mechanisms, such as substance use. Therefore, by helping maladaptive perfectionists cope, universities could reduce academic dishonesty and substance use more proactively by using interventions shown to reduce maladaptive perfectionistic thoughts. For example, early testing of cognitive behavioral therapy (CBT) showed decreases in perfectionism for participants (Egan & Hine, 2008). Additionally, self-compassion interventions have been found to reduce participants' maladaptive, perfectionistic thoughts, and thus may also reduce their likelihood of engaging in deviant behavior (Ferrari et al., 2018).

In an effort to address this gap in the research, the current study specifically looks at the role of perfectionism and its interaction with strain in influencing students' participation in academically dishonest behaviors. To do this, I will begin with a review of current literature on both academic dishonesty and perfectionism to establish what is already known about these subjects as well as the gaps that currently exist in the literature. Next, there will be an explanation of the theoretical framework (general strain theory) and how it supports the research question and hypotheses. I will then discuss the current focus and methodology for this study with an explanation of the vignette and

survey design. The results of the chi square tests and regressions are presented. Finally, the implications of the findings to theory and policy and the limitations are discussed.

Background

Universities and other institutions of higher learning often have a student honor code and/or handbook. Within these documents, these institutions include standards of conduct and academic integrity, requiring students to promise to refrain from engaging in academically dishonest behaviors (Arizona State University, 2018; University of Colorado Denver, 2017). These behaviors generally include plagiarism (using other individual's work without attributing credit), cheating (using information or materials not authorized by the instructor, or communicating with another individual without instructor permission), fabrication or falsification (making up or changing data and results), and multiple submissions (submitting academic work for which credit has already been earned) (University of Colorado Denver, 2017). This can cause problems for institutions of higher learning as they cannot accurately assess the ability and knowledge of students engaging in academic dishonesty; thus, students may be granted credentials they did not earn. This can then have negative consequences in the workplace if someone is hired on the assumption that they have a certain skill level given their degree, when in fact they did not earn it. This is clearly a cause for concern among higher learning institutions, and it is one that shows no signs of decreasing, as addressed in the following section (Davis & Ludvigson, 1995; Davis et al., 2015).

Academic Dishonesty Prevalence and Covariates

Before investigating the causes of academic dishonesty, it is important to first understand how prevalent this form of deviant behavior is. Many studies have

investigated this question and have found some interesting results. For example, in a study of 2,153 undergraduates, Davis and Ludvigson (1995) found that 70% reported cheating in high school, although this fell in college to between 40-60% across 71 institutions in 11 different states. Additionally, the researchers found that of those who reported cheating in high school, 80% reported multiple instances of cheating. This percent was only 50% for those who cheated in college (Davis & Ludvigson, 1995). Similarly, a later study conducted found that although over 90% of student participants indicated that cheating is wrong, 76% reported having cheated at least once in high school or college (Davis et al., 2015). These results show that academic dishonesty is highly prevalent, and thus, should be a concern warranting investigations into the causes of such behaviors.

There are a wide range of factors that contribute to the prevalence of academic dishonesty. In a study surveying students at nine universities (medium to large in size), McCabe and Trevino (1997) found that the most powerful influences on college students' cheating behaviors were peer-related contextual factors. In this sample, as well as among students at a private liberal arts college, social norms and perceptions of peers' behaviors have been shown to have strong effects on engagement in academically dishonest behaviors (McCabe & Trevino, 1997; Jordan, 2001). Similarly, Jensen and colleagues (2002) found that among high school and college students surveyed, personal beliefs towards cheating as well as motives had effects on the student's acceptance of cheating. Students who were more lenient towards cheating in general were more likely to be accepting of cheating. Furthermore, when an individual's motive was due more to desperation (e.g. needed to pass to get a job or would be put on academic probation if

they did not pass) students were more likely to see this as acceptable. However, more personal, or moral motives (e.g. very competitive or did not think it was important) were seen as less acceptable (Jensen et al., 2002).

Other works have focused on specific characteristics and their effects on academic dishonesty. For example, several studies have examined the role of ethics and morality. Such work has shown that students engage in neutralization techniques to rationalize their behaviors despite believing that cheating is wrong. By blaming others or the situation, students are able to rationalize their behavior while still holding that cheating as a concept is wrong. This relationship has been shown in both a sample of students from a small state university (Haines et al., 1986) and from 31 highly selective schools nationwide (McCabe, 1992). This effect was also shown to be further exacerbated by immaturity and lack of commitment to one's education (Haines et al., 1986).

Further emphasizing the importance of ethics, a study using focus groups from both a church-affiliated liberal arts college as well as a two-year campus of a major research university found that greater endorsement of idealism (principle of doing no harm to others) was associated with higher levels of negative perceptions of cheating. These individuals were also less likely to condone high sensation-seeking activities such as those involving alcohol, drugs, and sex. These results were then replicated in a larger study using survey data collected at the two-year campus (Etter et al., 2006). Similarly, a survey of undergraduate psychology students found that the more students emphasized their moral identity, described as "an internal set of moral prescriptions that help define

who they are as a person," and the less they stressed social evaluation, operationalized by feelings of social anxiety, the less likely they were to cheat (Wowra, 2007, p. 3).

Another factor found to influence students' academic dishonesty is perception of punishment (Hollinger et al., 1996; Jordan, 2001). One study surveyed undergraduate students at a major public university and found that students viewed most University policies, including setting assigned seats for exams, not allowing anyone to leave the exam, and creating an anonymous tip line for reporting cheating, to be largely ineffective at preventing cheating. However, students did indicate that some policies were effective, including small class sizes, scrambling test questions, and multiple proctors during an exam. Interestingly, perceptions about the effectiveness of countermeasures did not significantly differ between cheaters and non-cheaters, indicating that there is no deterrent effect (Hollinger & Lanza-Kaduce, 1996). In contrast, Jordan (2001) found that students at a small liberal arts college who cheated had less understanding about the university's policies regarding academic dishonesty than those who never cheated. Given these mixed results, more research is necessary to determine whether university policies have a deterrent effect.

More recently, with the rise of technology and its increasingly influential role in the educational setting, research has begun to focus on how this has influenced academically dishonest behaviors (Etter et al., 2006; Szabo & Underwood, 2004). Through this work, research has found no significant differences between students engaging in technology-based cheating behaviors and more traditional forms of cheating, both in the US and the UK (Etter et al., 2006; Szabo & Underwood, 2004; Davis & Ludvigson, 1995; Davis et al., 2015). Thus, it seems as though technology has done

nothing to either increase or decrease academic dishonesty, all though more research is necessary to know with certainty.

Researchers have also recently begun to investigate the role of personality in academic dishonesty, particularly that of self-control. Low levels of self-control, or the "tendency to respond to tangible stimuli in the immediate environment, to have a concrete 'here and now' orientation," have been linked to engaging in more academic dishonesty and other imprudent behaviors, such as calling people while intoxicated, public profanity, and public flatulence (Gottfredson & Hirschi, 2014, p.242; Bolin, 2004; Bichler-Robertson et al., 2003; Reisig & Pratt, 2011). Furthermore, perceived opportunity and attitudes have been shown to have an effect on this relationship (Bolin, 2004; Bichler-Robertson et al., 2003; Reisig & Pratt, 2011). Attitudes towards academic dishonesty mediate the effects of both self-control and perceived opportunity on academic dishonesty (Bolin, 2004). Similarly, both opportunity and strain interact with self-control in their effects on cheating behavior (Bichler-Robertson et al., 2003). Finally, low levels of self-control are associated with more reporting of academic fraud as well as other 'imprudent' behaviors (Reisig & Pratt, 2011).

Another personality trait that has been shown in the literature to have an effect on academic dishonesty is narcissism, especially the exhibitionism dimension. Narcissistic personality disorder is characterized by arrogance, exploitive attitudes, and lack of empathy (Brunell et al., 2011). Furthermore, exhibitionism is the way narcissists flaunt their self-believed superiority to those around them (e.g., bragging about their performance on an exam). Higher scores on the exhibitionism dimension of the Narcissistic Personality Inventory (NPI) were associated with higher levels of self-

reported cheating, which was attributed to these individuals' lack of guilt (Brunell et al., 2011). Furthermore, the effects of narcissism on academic dishonesty may be mediated by exploitative attitudes, or the use of people and opportunities for one's own gain at the expense of others (Menon & Sharland, 2011).

As evidenced, there has been an increased focus on personality and individual characteristics within the literature on academic dishonesty. Most notably, decreases in self-control and increases in narcissism have been tied to more academically dishonest behavior (Bolin, 2004; Bichler-Robertson et al., 2003; Reisig, & Pratt, 2011; Brunell et al., 2011; Menon & Sharland, 2011). However, this focus has yet to expand to perfectionism, despite the associations between perfectionism and anxiety, maladaptive coping, and, at times, aggression, which will be further discussed in the following section (Levine et al., 2017; Chester et al., 2015).

Perfectionism

Perfectionism is a personality trait in which individuals strive to perform at or above certain standards they set for themselves, and is a personality trait characterized by setting high standards. Perfectionism comes in three types: other-oriented, socially-prescribed, and self-prescribed (Stoeber, 2014). Other-oriented perfectionism is the setting of high standards for those around you; socially-prescribed, on the other hand, is the setting of high standards by others, for you. For the purposes of this thesis, the focus will be on self-prescribed perfectionism, or the setting of high standards for oneself, meaning that the source of these high standards is internal, rather than pressures from family, peers, or other external sources. Much of the focus in the literature surrounding self-oriented perfectionism is its effect on later outcomes, particularly those of mental

health (e.g., depression and anxiety). While these effects may be positive (e.g., resourcefulness, positive affect, and higher performance levels; Klibert et al., 2005; Yang et al., 2016), they are quite frequently negative (e.g., increased stress, negative affect, and aggression; Bieling et al., 2003; Chester et al., 2015; Klibert et al.,, 2005; Rice & Arsdale, 2010; Yang et al., 2016; Rice et al., 2012). Both kinds of effects can have important implications for the individual's subsequent behavior and well-being due to the effect on one's emotions.

Some of the positive effects of perfectionism are resourcefulness, positive affect, assertiveness, and conscientiousness (Klibert et al., 2005; Yang et al., 2016; Bieling et al., 2003). A study of college participants at a southeastern university found that adaptive perfectionists had lower learning stress and higher learning satisfaction and academic performance when compared to both maladaptive perfectionists and non-perfectionists (Klibert et al., 2005). These results were also found in a study of elementary and high school students in China, with the strongest association found for adaptive perfectionists who reported that their families were also adaptively perfectionistic (Yang et al., 2016). Finally, a study of undergraduate psychology students surveyed participants both two weeks before they took their mid-term exam, and again one week after they received their grades. This survey found that perfectionists not only expected higher grades on exams than non-perfectionists, but also adaptive perfectionists often actually performed better (Bieling et al., 2003).

Although perfectionism can have positive effects, there are also often serious, negative consequences. For example, maladaptive perfectionists, and particularly those with maladaptively perfectionistic families, have higher stress levels (Rice & Arsdale,

2010; Yang et al., 2016). Furthermore, a cross-panel study of undergraduate students found that the effect of perfectionism on psychological distress is stronger than the effect of procrastination (Rice et al., 2012). Relatedly, in the pre- and post-test study conducted by Bieling and colleagues (2003), all perfectionists, regardless of type, were less likely to reach their own goals, and were subsequently more likely to experience negative affect, although the effect was stronger for maladaptive perfectionists. In addition to negative affect, an experimental study found that maladaptive perfectionism was linked to aggressive and self-harming behavior following negative feedback. In this study, undergraduates were asked to write an essay about a time they were angry, and then received feedback on said essay. The feedback contained a rating of 6 out of 35, and an insulting comment. Following this feedback, maladaptive perfectionists were significantly more likely than adaptive perfectionists to exhibit anger, aggression, and self-harming tendencies. The influence on aggression was mediated by the motivation to improve one's mood through aggression, supporting an emotion regulation explanation, which states that individuals modify their behavior in anticipation of how that action will make them feel (Chester et al., 2015).

As the literature clearly shows, perfectionism has profound implications for later negative behavioral and psychological outcomes. Additionally, previous work indicates a relationship between perfectionism and coping abilities. More specifically, maladaptive perfectionism is associated with high levels of maladaptive coping behaviors (Rice & Arsdale, 2010; Richardson & Rice, 2015; Stoeber & Janssen, 2011) such as drinking to cope and problem drinking behaviors (Rice and Arsdale, 2010), failure to disclose daily

emotional events (Richardson & Rice, 2015), and engage in self-blame and avoidance (Stoeber & Janssen, 2011).

Perfectionism and Academic Consequences

Although there is a large breadth of research on the consequences of perfectionism, as demonstrated, very little of the research has focused on academic consequences. However, two studies have examined this trait within the academic context. Eum and Rice (2011), surveyed undergraduate psychology students to examine the relationships between perfectionism, test anxiety, and goal orientation. They found that most of the positive outcomes are associated with adaptive perfectionism, which has been found to relate to an internal motivation for learning and a desire to optimize learning opportunities. In contrast, maladaptive perfectionism is often associated with the negative consequences of perfectionism. This type has been found to be strongly associated with a fear of failure and feelings of, or concerns, about inadequacy. Furthermore, maladaptive perfectionists are often more concerned with making a good impression or performing well, rather than the learning itself. (Eum & Rice, 2011).

The second study examining the academic consequences of perfectionism found that self-oriented perfectionism (which encompasses both maladaptive and adaptive perfectionism) is generally associated with positive outcomes in school. In this study, conducted by Flett, Blankstein, and Hewitt (2009), the researchers surveyed psychology students one week before they were to take their second term test, and again immediately following the test. The study found that self-oriented perfectionists had higher levels of positive affect, indicating that these individuals experienced pride and satisfaction in their work. However, this does not indicate that both types of perfectionism are associated

with higher positive affect. Rather it suggests that the effects of maladaptive perfectionism may be obscured when considered in conjunction with adaptive perfectionism, highlighting the importance of studying these two types separately.

There is clearly a gap in the literature with regards to the effects of perfectionism on academic dishonesty. Despite the lack of empirical work testing the effects of perfectionism on academic dishonesty, there is a theoretical basis to suggest that perfectionism will have an effect. General strain theory, particularly its emphasis on the use of deviant or criminal coping to negate strain, support a potential link between perfectionism and academic dishonesty, particularly in high stress situations.

Theoretical Framework

First introduced by Robert Agnew (1992), general strain theory (GST)'s main assumption is that crime is a result of strain and a lack of effective coping in response to that strain. Strains, he explains, are events or conditions that the individual dislikes. They can be experienced, meaning the individual experiences the strain themselves; vicarious, meaning the individual knows or witnesses someone going through the strain but does not experience it themselves; or anticipated, meaning the individual has not yet experienced the strain, but expects to. Within these categories, strain can fall into: failure to achieve positively valued goals, the loss of positively valued stimuli, and the presentation of negative stimuli. Furthermore, these strains can either be objective, where most people in a given group would agree they are stressful and displeasing; or subjective, where most people may view the stimulus as benign or even positive, but the individual in question views it as a negative stressful experience (Agnew 1992, 2014).

As Agnew explains, these strains can lead to crime in a number of ways. First, strain can lead to negative emotions such as anger and frustration, which in turn, can lead to crime. They can also lead to more constant personality changes, such as negative emotionality and low constraint, or perhaps lower levels of social control. Finally, strain may encourage social learning of crime. He also identifies strains most likely to result in crime, describing them as severe, unjust, associated with low social control, and in some way create a desire or incentive to engage in criminal coping (Agnew, 2014).

Even if the strain is ideally suited for criminal coping, it is unlikely to result in offending unless the individual experiencing the strain is unable to properly cope with the situation (Agnew 1992, 2014). Coping refers to an individual's response to environmental stimuli, and can be positive or negative. If the individual copes in a positive way (e.g., meditating, exercising, or talking with friends about the situation) this can reduce their feelings of strain. However, negative coping (e.g., drug or alcohol abuse, suppression, or emotional eating) can actually increase feelings of strain. Within the context of general strain theory, individuals feel a need to cope with strain in order to rid themselves of or alleviate the negative emotions caused by said strain. The majority of individuals do this in a legal manner. Examples of this include, but are not limited to: formal complaints, removing oneself from the situation, exercise, avoidance, and engaging in risky behaviors (Agnew, 2013; Agnew, 2014).

However, some coping mechanisms may be criminal in nature. If individuals have the resources and ability to cope with strain legally, they are unlikely to choose this path. However, for those who lack the ability to cope, criminal means become a more attractive alternative. Similarly, if the costs of criminal coping are low, individuals are more likely

to take that option. However, if the cost of the criminal act is higher than the cost of the strain, it is unlikely that an individual will engage in criminal coping. Finally, some individuals are more disposed towards crime, which could be due to low self-control, high negative emotionality, or associations with delinquent peers (Agnew, 2014).

As a general theory, GST is designed to explain all crime. However, certain strains are more likely to cause certain types of crime (Agnew, 2013). For example, research has shown that financial strains are most commonly associated with crimes that will generate income (Felson et al., 2012). Especially relevant to the current study, academic strains are likely to cause individuals to engage in deviant behaviors in an effort to achieve goals such as higher grades or completion of work. Thus, individuals who are experiencing these school-related strains may be at an increased risk for academic dishonesty or delinquency when they have failed to reach these goals through the approved methods (Agnew 2013, 2014). This is then likely to be further exacerbated by their type and level of perfectionism as these individuals experience stress at a higher level (Bichler-Robertson et al., 2003; Tedor et al., 2015; Smith et al., 2013). For example, perfectionists are at increased risk for strain as a result of a failure to achieved positively valued goals.

As the literature shows, perfectionists are more likely to set higher goals for themselves, and often feel they have fallen short of these goals, particularly maladaptive perfectionists (Eum & Rice, 2011; Rice & Arsdale, 2010; Rice et al., 2012; Rice et al., 2006). This in turn causes these individuals to feel strain and in turn experience negative emotions, which as described by Agnew could lead them towards crime and deviance, or in this study academic dishonesty. This connection between the use of maladaptive

coping strategies and academic dishonesty is especially relevant when the individual lacks access effective coping mechanisms (Agnew, 2014). Therefore, maladaptive perfectionists are at the highest risk for using unsanctioned methods to achieve their academic goals, given their propensity for maladaptive coping, as demonstrated in the literature (Levine et al., 2017; Chester et al., 2015; Rice & Arsdale, 2010; Richardson & Rice, 2015; Stoeber & Janssen, 2011). This relationship is also likely to be further exacerbated by academic stress, which has been identified by Agnew as well as other researchers to have important implications (Bichler-Robertson et al., 2003; Tedor et al., 2015; Smith et al., 2013). See Figure 1 in Appendix A for the proposed pathways.

As demonstrated throughout this review, there are several gaps in the literature. First, the literature on academic dishonesty has so far failed to investigate the role of perfectionism. Second, although some research has examined the role of stress in the consequences of perfectionism, there has not been as much of a focus in light of the tenets of general strain theory. Furthermore, the research that has been done has not yet tested for interacting effects between external strain and perfectionism on engagement in academic deviance and dishonesty. This is an important connection to explore as higher education can be a stressful time, and thus students are often operating under strain. Connections made between perfectionism and academic deviance ought to take this into consideration to better approximate the experience of students.

Current Focus

Although there is considerable knowledge on both the covariates of academic dishonesty and the consequences of perfectionism, there is not yet work examining the potential link between the two, despite seeming theoretical support for the connection. In

order to begin addressing this gap, this thesis is focused on linking perfectionism, strain, and academic dishonesty. To this end, this study seeks to answer three research question: (1) "*Are there differences in the likelihood of engaging in academic deviance by maladaptive perfectionists, adaptive perfectionists, and non-perfectionists?*", (2) "*Are there differences in the perceptions of the wrongness of academic deviance between maladaptive perfectionists, adaptive perfectionists, and non-perfectionists?*", and (3) "*Are there differences in how context dependent maladaptive perfectionists, adaptive perfectionists, and non-perfectionists view the wrongness of academic deviance?*" Corresponding to these research questions, this study seeks to test three hypotheses: (1) maladaptive perfectionists will be the most likely to engage in academic deviance, especially in cases of high strain, and adaptive perfectionists will be the least likely, (2) maladaptive perfectionists will view academic deviance as less wrong than the other two groups, especially in high strain situations, and (3) maladaptive perfectionists will be the most likely to view the wrongness of behaviors as context dependent.

These hypotheses are supported by prior research as well as the theoretical framework previously described. As Agnew (2014) describes, individuals commit deviant acts in response to strains, particularly when access to legal coping mechanisms is limited. Thus, maladaptive perfectionists are logically more likely to engage in this deviant coping because they are more likely to experience strain, as evidenced by prior research (Bielinget al., 2003; Chester et al., 2015; Klibert et al., 2005; Rice & Arsdale, 2010; Yang et al., 2016; Rice et al., 2012). Furthermore, the research has shown, maladaptive perfectionists are likely to fall short of their goals (Eum & Rice, 2011; Rice

& Arsdale, 2010; Rice et al., 2012; Rice et al., 2006). Finally, this type of perfectionism has been associated with higher levels of maladaptive coping
(Rice & Arsdale, 2010; Richardson & Rice, 2015; Stoeber & Janssen, 2011). This empirical evidence, coupled with the theoretical framework of general strain theory, together suggest that maladaptive perfectionists will engage in more deviant behavior. Furthermore, it logically follows that this effect will be most extreme in situations of high strain.

In answering the above research question and testing the two hypotheses, this study seeks to contribute to the academic deviance literature. First, much of the research covered in the literature review is correlational based on survey data. Although this study also uses a survey, in adds to the current knowledge by using vignettes to manipulate an experimental stimuli, in this case strain. It also includes perfectionism, a personality trait that has not yet been tested with regard to academic deviance, although there are documented academic consequences to this trait (Flett et al., 2009; Eum & Rice, 2011). Thus, this study fills a gap in the current research and provides information to professors and universities as to a potential influence on academic deviance. This in turn can inform related policy aimed at decreasing academic deviance through interventions to reduce maladaptive perfectionistic thoughts.

Methodology

Study Site

The setting for this study is Arizona State University. The University's charter places an emphasis on research that has value to the general public, diverse inclusion of students, and a responsibility to serve the community's economic, social, and cultural

health. The university's goals include demonstrating academic excellence and accessibility, establishing itself as a leader in interdisciplinary research and innovation, and enhancing the local impact and social embeddedness of the school (Office of the President, 2018). The programs of study at this institution include, but are not limited to, business, engineering and technology, humanities, science, and law (Academic Programs, 2018). Furthermore, the honor code at ASU requires students to pledge that they will not engage in academic dishonesty, defined in the student policy to include a wide variety of behaviors such as academic deceit, plagiarism, signing the attendance sheet for others, and many more. Possible sanctions are also listed, including punishments such as grade penalties, loss of registration privileges, disqualification, and dismissal (Student Policy, 2018).

The school has four campuses, with a total of 74,878 students (as of 2019). These campuses include the main campus in Tempe, AZ, which serves 53,286 students. The Downtown Phoenix campus is the second largest, with 11,420 students. The Polytechnic campus in Mesa, AZ and the West Campus located in Glendale, AZ are the smallest, with 5,243 and 4,929 students, respectively (Institutional Analysis, 2019).

The student population is comprised of both undergraduate and graduate students. As of 2019 there were a total of 62,186 undergraduates, 57,115 (91.8%) were full time. Additionally, there were 12,692 graduate students, 9,907 (78.1%) of whom were full time. Data from 2019 showed that of the undergraduate student body, slightly less than half were female (48.6%), and the race/ethnicity breakdown was 47.8% white, 25.3% Hispanic, 7.8% Asian, 7.7% international, 4.6% mixed race, 4.2% black, 1.3% Native American/Alaskan Native. The gender and racial/ethnic breakdowns are similar for

graduate students, although with a much higher representation of international students (Institutional Analysis, 2019).

Design

This study employs a vignette-based design. Vignettes are used to present participants with hypothetical scenarios that mimic real life when actual manipulation of the events is not possible. Individual's responses to vignettes are similar to real-life responses, according to the literature, especially when the vignettes are imaginable and realistic (Hyman & Steiner, 1996; Hughes, 1998; Spalding & Phillips, 2007; Collet & Childs, 2011). Furthermore, vignettes allow the researcher to save the costs of conducting a true experiment, if that were even a possibility. Experiments can have large overheads as they generally require a large team of research assistants, and frequently also require laboratory space. Vignettes, on the other hand, allow for experimental manipulation without the need for these extra resources (Hyman & Steiner, 1996). Vignettes allow the researcher manipulate experimental stimuli through survey research, thus saving the costs and time required to implement interventions in a real-world scenario. Furthermore, some manipulations may have ethical concerns if conducted in real-life, and thus vignettes can help mitigate those risks.

For the purpose of this study, vignettes were distributed to respondents via email. Specifically, a sample of ASU undergraduates (sampling frame is explained below) each accessed a survey link, which they received from their professor, with one vignette depicting one of two possible scenarios (i.e., writing a term paper for a class or studying for an exam) (See Appendix B). These scenarios were chosen to test two different types of academic deviance (e.g., academic dishonesty and academically-related illegal

behavior). In the paper condition, students were told they had a certain amount of time to complete a research paper, but they also knew someone they could pay to write it for them. Paying someone to write a paper is a form of academic deviance. In the exam condition, students were told they were studying for an exam when they noticed their roommate left out their Adderall. Taking Adderall without a prescription may not be explicitly against university policy or considered academic dishonesty, but it is an illegal behavior.

Students who received the first scenario were asked how wrong it would be and how likely they would be to pay someone to write the paper for them. Those who received the second scenario were asked the same questions, but with regards to taking his or her roommate's Adderall that had been left out. They were also asked to what extent the wrongness of the behaviors is context dependent. The example provided for the paper condition was if the professor gave only a short amount of time to complete the assignment (e.g., the weekend). The example in the exam condition was if the professor was known to ask questions on the exam that were not covered in the review.

Four questions were included for quality control, and assessed whether the respondent read and/or understood the scenarios they responded to. These questions asked how realistic the scenario was, how imaginable it was, if the scenario would be stressful to complete as described, and finally a quality assurance check to measure whether or not the participant had read the vignette correctly. For the paper scenario, this last question asked when the paper was due, as this was the experimental stimuli. In the low strain condition, the paper was not due for a month, whereas in the high strain condition it was due the next day. For the scenario studying for a test, the participant was

doing well in the class for the low strain scenario, and there was little pressure to do well. In the high strain scenario, however, the participant was told they were failing the class and needed to do well on the test or they would not pass (See Appendix B).

Each vignette also included strain as the experimental stimuli, thus allowing for the testing of both the main effect of strain as well as an interacting effect between strain and perfectionism on academic deviance. In the paper condition, the due date was changed between "a month from now" for the low strain condition, and "tomorrow" for the high strain. In the exam condition, the student's standing in the course was changed from "doing well" in the low strain condition to "failing" in the high strain. This created a 2x2 design with a total of four possible vignettes. Following the vignette, the participant was asked eight questions.

Within the vignettes, the participants were presented situations with either high or low strain, then opportunities for academic dishonesty. There were two scenarios, each with a high and low strain condition, and each with a different purpose. The first scenario was designed to measure attitudes towards an academically dishonest behavior, but not illegal. For this condition, the vignette concerned a paper due in a science class; the high strain condition only had one day to complete the paper, whereas the low strain condition had a month. The second scenario was designed to test something that by university policy may not be academic dishonesty but is illegal. This condition involved the student studying for an exam with the opportunity to take Adderall without a prescription; the high strain condition was failing the class and needing to do well on the exam to pass the class, and the low strain condition was doing well in the class and the exam was unlikely to affect the student's grade.

The survey also included questions to assess participants' levels of perfectionism and self-control. Perfectionism was measured using the Almost Perfect Scale-Revised, a well-validated measure of perfectionism (APS–R; Slaney et al., 1996; Slaney et al., 2001; Mobley et al., 2005; Rice & Ashby 2007). The APS-R includes two subscales: perfectionism, measured with items such as "*If you don't expect much out of yourself you will never succeed*" and "*I try to do my best at everything I do*," and discrepancy, measured with items such as "*My best just never seems to be good enough for me*" and "*I am hardly ever satisfied with my performance*." The scale consists of 23 items, each rated on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Alpha for the standards scale was .71, and for the discrepancy scale was .92.

Self-control was measured with a validated, 13-item scale (BSCS; Tangney et al.,, 2004; Maloney et al., 2012). This included items such as "*I am good at resisting temptation*" and "*I am able to work effectively toward long-term goals.*" It also contains reverse coded items such as "*I am lazy*" and "*I have trouble concentrating.*" These items were each rated on a 5-point Likert scale from 1 (not at all true of me) to 5 (very true of me). This scale had an alpha of 0.84. In addition to these scales, participants were also asked about recent coping behaviors such as exercising, attending therapy, and drinking to the point of blacking out (See Appendix B for the full list). The survey also asked participants if they had ever paid someone to write a paper for them, or if they had an Adderall prescription. Participants were also asked what percentage of college students they believed had either paid for a paper or taken Adderall without a prescription. Finally, participants were asked demographic questions including gender, race/ethnicity, age,

completed credits, GPA, method of taking classes, and college. The full survey can be found in Appendix B.

The survey was piloted with ASU students enrolled in summer courses (n = 81). This pilot allowed for the testing of the vignettes to ensure the manipulation was creating the expected effect, and that the scenarios were realistic. Following the pilot, a small modification was made to the vignettes (manipulations are now mentioned twice, instead of just once).

Sample

This study's sample consists of ASU undergraduates. To this effect, a sampling frame was created comprising of all classes offered online as well as the Tempe and Downtown Phoenix campuses. These two campuses were chosen due to time constraints, and they were specifically chosen as they are the two largest at the university. Online classes were also included to increase population diversity, and to include students from other campuses as well (ASU Online, 2018).

Classes from fall session C were sampled by using a random number generator. The professors for the sampled classes were then emailed requesting they send an announcement about the survey to their students. If no response was received, a follow-up email was sent by the academic advisor for this project. A total of 366 professors were emailed, and 72 responded. Of those who responded, 61 agreed to send the announcement on to their students. In addition to emails sent to professors, an email was sent to all students in the Watts College of Public Service and Community Solutions asking them to participate. All participation was anonymous and voluntary, although students were given incentives to participate. First, at the individual professor's discretion

students could earn extra credit for completing the survey. Second, students had the option to enter a raffle for one of several Visa pre-paid gift cards.

A total of 1,248 surveys were collected. However, due to missing data and failure of manipulation checks, 552 cases were dropped from the final analyses, leaving a final sample of 696 participants.[1] This high failure rate was likely due, at least in part, to giving the survey online. Participants were unable to refer back to the vignette when answering these questions, and thus while it may be a truer measure of memory, they failed at a higher rate. As shown in Table 1 (See Appendix D), of the 696 participants included in the sample, 7.9% are Asian, 5.6% Black, 25% Hispanic, 67.5% White, and 5.3% identified as other (participants were able to pick more than one race or ethnicity category, and thus the percentages add to more than 100%). With respect to gender, 76% of the participants are female, 22.60% male, and 1.48% identified as other. These demographics are similar to the overall population at Arizona State University, with a few exceptions. Females are overrepresented in the sample (48.6% school-wide), as are white participants (47.8% school-wide). However, the other racial categories are similar. This overrepresentation of white participants could be due, in part, to the coding of the variables. In the sample, participants from a mixed race background were counted in each of their racial identity categories, whereas in the school-wide statistics they were categorized separately (Institutional Analysis, 2019). Thus, the sample is an accurate representation of the undergraduate population at Arizona State University with regards

[1] A discussion of the manipulation checks can be found in Appendix C. Table 1 of Appendix C contains the results of the manipulations. Furthermore, to assess any potential differences between those who were dropped from the sample and those who were kept, chi square tests were run, the results of which are shown in Table 2 of Appendix C.

to race and ethnicity, but the sample has a much higher percentage of female participants, which may have implications for the results.

Because each participant only received one vignette, differences in the independent and control variables between vignettes were assessed using chi-squares tests. As shown in Table 2 (See Appendix D), no significant differences were found, indicating proper randomization of vignette conditions. Therefore, differences in the dependent variables between vignettes can be assumed to be due to the manipulation of strain, rather a systematic difference between participant-level characteristics.

Measures

Dependent variables

Table 3 (see Appendix D) contains the coding schema for each of the variables examined in this study. The dependent variable of interest is academic dishonesty and deviance. To measure this, three dependent variables were constructed using the responses of the participants to the questions following the vignettes. Each question was recorded on a 5-point Likert scale. The first dependent variable was how likely the participant would be to engage in the behavior, coded from 1 (not likely at all) to 5 (very likely). The second dependent variable was how wrong the participant felt it would be to engage in the behavior. This scale went from 1 (not wrong at all) to 5 (very wrong). Lastly, the third dependent variable asked to what extent was the wrongness of the behavior context dependent, coded from 1 (not at all) to 5 (extremely).

Independent variables

There are three independent variables of interest for this study, the first of which is *perfectionism*. This was first measured as two continuous sub-scales: standards and

discrepancy. Responses to these items were coded from 1 (Strongly Disagree) to 7 (Strongly Agree), and then summed to create the final standards and discrepancy scores. These scores were then used to divide participants into the three self-prescribed perfectionism categories: non-perfectionists, adaptive perfectionists, and maladaptive perfectionists. Cutoff scores for these categories were determined from prior literature. Non-perfectionists were determined by a score below 42 on standards. Those above a 42 on standards were subsequently categorized as perfectionists and further broken down into the two types by discrepancy scores. Adaptive perfectionists had a discrepancy score below 42, and maladaptive perfectionists had a discrepancy score above 42 (Slaney et al., 1996; Slaney et al., 2001). This cutoff approach was used to allow for the comparison across groups to help identify the group most at risk so policies may be more accurately targeted.

The second independent variable of interest is *strain.* This variable was operationalized as which vignette the participant received. Within each scenario (writing the paper and studying for the exam) there were two conditions, high and low strain. For the paper scenario, low strain was when the paper was due in one month, and high strain was when the paper was due the next day. For the test scenario, the low strain condition was when the participant was doing well in the class, and the test grade was not crucial. This high strain condition was when the student was failing the class, and thus needed to do well on the exam. The final strain was measured through a dummy variable, where 0 corresponded to receiving the low strain condition and 1 the high strain condition.

Finally, the third independent variable is an *interaction* between perfectionism type and strain (perfectionism x strain). Including this interaction allows for the

examination of the impact of perfectionism at the two levels of strain. For example, non-perfectionists x high-strain shows the effect of being a non-perfectionist when reading the high strain vignette.

Control variables

A number of control variables were also included in this study. First, as previously addressed in the literature review, *self-control* has been linked to academic dishonesty, and thus was controlled for in this study (Bolin, 2004; Bichler-Robertson et al., 2003). The necessary items were reverse coded, such as "*I am lazy*" and "*I have trouble concentrating*" and then the scores were summed for a total self-control score, higher levels of which indicated higher levels of self-control. Then, the participants' responses for each of the items were summed to create a continuous variable ranging from 17 to 65.

Additionally, due to the nature of the academic deviance used in this study, students were asked if they had an Adderall prescription or if they had every paid someone to write a paper. Both of these were dummy coded with 0 for no and 1 for yes. GPA was also controlled for as it has been linked to both dishonesty (see Brunell et al., 2010) and perfectionism (see Grzegorek et al., 2004) in prior research. This was coded ordinally with six categories coded as follows: less than 0 (< 2.5), 1 (2.5 – 2.99), 2 (3.0 – 3.49), 3 (3.5 – 3.99), 4 (4.0+), and 5 (N/A, for participants in their first semester as they had not yet received grades). Finally, demographic characteristics of respondents were also included. Gender was included as prior research has shown differences between genders in coping with stress (see Rice & Arsdale, 2010) and cheating behaviors (see Miller et al., 2008). The variable was coded as 0 for male, 1 for female, and 2 for other

(including transgender and non-binary individuals). Race is also commonly included in the literature (see Vazsonyi et al., 2001; Tedor et al., 2015). In this study, race and ethnicity were coded in five-separate variables: Asian, black, Hispanic, white, and other, each dummy coded with 1 indicating that the participant belonged to that category. Participants were able to select all that applied, and thus may have ones for more than one of these variables.

Analysis Plan

Descriptive and multivariate techniques are employed in order to assess the research questions and test the study's hypotheses. First, descriptive statistics were run using frequencies and summations in order to better understand the data. Second, ordered logistic regressions were used to determine if perfectionism and strain had main and/or interacting effects on academically deviant decisions of participants when controlling for self-control and demographic characteristics. Logistic regression is the best choice for the data because the dependent variables are ordinal, and ordered logistic regressions allow for the variability to be preserved as it does not require dichotomization (Mehmetoglu & Jakobson, 2017). These ordered logistic regressions were used to answer each of the research questions and hypotheses. First, to test the effects of perfectionism, three separate regressions were run for each of the dependent variables. Second, to test the effects of strain and interactions the sample was split in two based on vignette scenario, and separate regressions were run for each dependent variable, for a total of six models.

Before employing ordered logistic regressions, tests were run to determine whether or not the assumptions of the analysis were met. The proportional odds or parallel regression assumption states that the relationship between each pair of outcome

groups is the same. If this assumption is true, then we can have one set of coefficients for the whole model. If it is violated, then we would need to run the model for each pair of outcome groups. To test this, likelihood ratio and Brandt tests were conducted. The likelihood ratio test tests the null hypothesis that the coefficients are the same between each pair of outcome groups. The Brant test is similar; it tests whether any variable violates the assumption, and also tests each variable separately (Mehmetoglu & Jakobson, 2017; "Ordered Logistic Regression"). The results of these tests were both insignificant ($p > 0.05$ and $p > 0.10$, respectively), suggesting that the data do not violate the primary assumptions of ordered logistic regressions, making it an appropriate model.

Furthermore, there was concern of multicollinearity between variables, particularly perfectionism and self-control. First, correlations were used to determine interdependence between the perfectionism scales and self-control. Standards, or the degree to which someone sets high standards for themselves, was correlated with self-control at 0.11. Discrepancy, or the extent to which someone feels they cannot reach their own standards, was correlated at -0.41. Neither of these correlations is particularly concerning with regards to multicollinearity, but VIF was still run for added insurance. The full VIF model can be found in Table 4 (See Appendix D). Importantly, mean VIF for the model was 1.24, indicating that none of the variables were too highly interrelated. Thus, with the validity of the model and variables of interest assured, the full analyses were conducted.

Results

Descriptive Results

Table 5 (See Appendix D) contains the descriptive statistics for the variables used in this analysis. The frequencies for the three dependent variables indicate that only a small proportion of participants would engage in the behavior in the vignette (somewhat and extremely likely, 12.36%), did not believe the behavior was wrong (wrong and very wrong, 7.62%), and felt that how wrong the behavior was would be context dependent (moderately, very, and extremely, 15.09%). For the independent variable, Table 5 shows that a majority of participants are non-perfectionists (55.46%), a large percentage are maladaptive perfectionists (35.34%), and a smaller percentage of adaptive perfectionists (9.20%). Furthermore, a very small percentage had previously paid someone to write a paper for them (1.87%) or had a prescription for Adderall (3.90).

As shown in Table 5, the sample is mostly female (64.82%) and white (67.33%). There was also a large proportion of Hispanic participants (25.14%) with smaller proportions of Asian (7.90%), black (5.60%), and other (5.32%) participants. Additionally, the largest proportion of participants had a GPA between 3.5 and 3.99 (31.03%), with large proportions also having a GPA between 3.0 and 3.49 (20.98%) and no GPA because they were in their first semester (22.84%). The average age of participants is approximately 21, with a range from 17 to 48. Additionally, the average score for self-control was 41.79, with a standard deviation of 9.58.

Effects on Likelihood of Engagement

The results in this section correspond to the first research question, "*Are there differences in the likelihood of engaging in academic deviance by maladaptive*

perfectionists, adaptive perfectionists, and non-perfectionists," and hypothesis, "maladaptive perfectionists will be the most likely to engage in academic deviance, especially in cases of high strain, and adaptive perfectionists will be the least likely." Table 6 shows the results for the overall model, which includes all participants regardless of the vignette. Tables 7 and 8 then divide the sample into two sub-samples based on vignette condition: paper or test.

Table 6 (See Appendix D) shows the extent to which the likelihood of participants *engaging in the academically deviant behavior* is dependent on the independent and control variables. The first model shows just the perfectionism results; the second model introduces strain and the interactions; the third model adds self-control, and the fourth model adds the rest of the controls. The coefficients in this table indicate the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable.

Neither non-perfectionists nor maladaptive perfectionists were significantly different in their likelihood to engage in academic deviance across when compared to adaptive perfectionists. This non-significant relationship remained as controls were introduced. Strain was also not significant in any of the models it was included in, nor were any of the interactions between strain and perfectionism (Models 2-4). Self-control was significantly associated with a slight decrease in likelihood of engaging in the academically deviant behaviors described in the vignettes ($B = -0.07$, $p < 0.001$) both at its inclusion (Model 3) and at the introduction of the other controls (Model 4). This means that a one unit increase in self-control decreased the log odds of engaging in the behavior by 0.07. Finally, in model four a few controls were significant. Females, when

compared to males, were slightly less likely to indicate they would engage in the behavior described ($B = -0.48$, $p < 0.05$). As expected, having paid for a paper previously was positively associated with an indication that the participant would do it again ($B = 1.66$, $p < 0.01$). Therefore, students who had previously paid for a paper had a 1.66 increase in odds of engaging in deviant behavior again. No categories of race or GPA had a significant impact on the participants likelihood of engaging in the academically deviant behavior described.

Paper Scenario

The results in this section refer to the effects on likelihood of engagement only for participants who received one of the two paper conditions. Thus, high-strain refers to the condition where the paper was due the next day, and low-strain refers to the condition where the paper was not due for a month. Furthermore, the control for an Adderall prescription was not included as it is not relevant to the scenarios included.

Table 7 (See Appendix D) includes the models for the main and interacting effects on the participants' likelihood of paying someone to write their paper for them. In the perfectionism analysis (Model 1), maladaptive perfectionists were significantly more likely than adaptive perfectionists to indicate they would pay someone to write the paper for them ($B = 1.04$, $p < 0.05$). However, after the addition of strain and its interactions (Model 2), the effect was no longer significant and remained insignificant in the subsequent models. There were no significant differences between adaptive and non-perfectionists across the models. There were also no significant main effects of strain, or any significant interacting effects. There were some significant effects of the controls in model 3. Once again, self-control had a significant ($p < 0.001$) negative effect on

likelihood of paying for the paper when included as the only control (B = -0.07, Model 3) and when other controls were included (B = -0.06, Model 4). Having a GPA between 2.5 and 2.99 (B = 1.37) and between 3.0 and 3.49 (B = 1.41) both significantly increased the likelihood of paying when compared to those with a GPA less than 2.5 ($p < 0.05$). Having previously paid for a paper significantly increased the likelihood of paying again (B = 2.90, $p < 0.001$).

Test Scenario

This section addresses the effects on likelihood of engagement for participants in one of the two test conditions. For this scenario, high-strain refers to the condition where the student was failing the class and needed to perform well on the exam, and low-strain refers to the condition where the student was performing well and the grade on the test was not as crucial. Furthermore, the control for previously paying for a paper was not included as it is not relevant to this condition.

Table 8 (See Appendix D) shows the effects of the independent and control variables on how likely the student was to take the Adderall to help them study. There was no significant main effect of perfectionism in any of the models. Strain, however, did have a significant effect. Being in the high strain condition did significantly increase the likelihood of taking the Adderall, with the largest effect being in the full model (B = 2.41, $p < 0.01$, Model 4). There were not any interacting effects between strain and perfectionism. There were also two significant controls in these models. Once again, higher levels of self-control significantly decreased the likelihood of taking the Adderall in both models it was included in (B = -0.08, $p < 0.001$, Models 3 and 4). Additionally,

being female, as compared to male, was significantly associated with less likelihood of engaging (B = -0.67, $p < 0.05$, Model 4).

Effects on Perceived Wrongness of Behaviors

The second research question, "*Are there differences in the perceptions of the wrongness of academic deviance between maladaptive perfectionists, adaptive perfectionists, and non-perfectionists?*," and hypothesis, "maladaptive perfectionists will view academic deviance as less wrong than the other two groups, especially in high strain situations," are addressed in the following section. The results for the overall model, which includes all participants regardless of the vignette, can be found in Table 9. Then Table 10 reports the results for just those in the paper scenario, and Table 11 has the relevant results for the those in the test scenario.

Table 9 (See Appendix D) includes the models for the effects of the independent and control variables on *how wrong the participants viewed the academically deviant behaviors* across vignettes. As seen in Model 1, non-perfectionists were significantly less likely than adaptive perfectionists to view the behavior as wrong (B = -.66, $p < 0.05$). However, the effect was no longer significant after the introduction of the strain (Model 2) and controls (Models 3 and 4). There were no significant differences between maladaptive and adaptive perfectionists in any of the models. Additionally, strain had no significant impact on how wrong participants viewed the behavior to be, and neither did the interactions between strain and perfectionism. Only self-control was significant in models 3 and 4, with a positive effect (Models 3 and 4). This indicates that increases in self-control were associated with viewing the behaviors as more wrong (B = 0.06, $p < 0.001$). No other control variables had a significant effect (Model 4).

Paper Scenario

This section includes results for the effects on the perceived wrongness for participants in the paper scenario. Thus, in the high-strain condition the paper was due the next day, and in the low-strain the paper was not due for a month. Furthermore, the Adderall control was not included.

Table 10 (See Appendix D) includes the models testing for the main and interacting effects on how wrong the participants viewed paying someone to write the paper. Here we see an effect of non-perfectionists as compared to adaptive perfectionism ($B = -1.17$, $p < 0.01$, Model 1) that remains significant after the introduction of strain ($B = -1.70$, $p < 0.05$, Model 2). These effects indicate that non-perfectionistic individuals were less likely to view the behavior as wrong. However, the effect is no longer significant after the introduction of self-control (Model 3) and the other control variables in the models (Model 4).

Here again we see a significant impact of self-control. At both its introduction (Model 3) and after the inclusion of the other controls (Model 4), an increase in self-control significantly increases how wrong the participant viewed paying someone to write the paper ($B = 0.07$, $p < 0.001$). Not yet having a GPA (so those in their first semester of college) was associated with viewing paying for the paper as less wrong ($B = -1.29$, $p < 0.05$) when compared to those who had a GPA under 2.5. Finally, and unsurprisingly, having paid for a paper previously was negatively associated with viewing the behavior as wrong ($B = -1.48$, $p < 0.05$).

Test Scenario

Table 11 (See Appendix D) shows the same results but for those who were in the test scenario. For this model, high-strain refers to the condition where the participant was failing the class, and low-strain refers to when the participant was doing well in the class. In these models, neither perfectionism nor strain had any significant main or interacting effects. Furthermore, the only significant control variable was self-control. At higher levels, self-control was associated with viewing taking the Adderall as more wrong ($B = 0.05$, $p < 0.001$, Model 4)

Effects on Perceived Context Dependency of Wrongness

This final section contains the results related to the third research question, "*Are there differences in how context dependent maladaptive perfectionists, adaptive perfectionists, and non-perfectionists view academic deviance the wrongness of academic deviance?*," and hypothesis "maladaptive perfectionists will be the most likely to view the wrongness of behaviors as context dependent." The model for the effects across scenarios is shown in Table 12, and Tables 13 and 14 have the results broken down by scenario.

Table 12 (See Appendix D) has the models for the extent to which *participants viewed the wrongness of the academic deviance as context dependent* across vignettes. Here, we see a greater and more significant effect of perfectionism than in the previous two tables. Both non-perfectionists ($B = 1.33$) and maladaptive perfectionists ($B = 1.11$) are significantly more likely to view the wrongness of the behaviors as context dependent ($p < 0.01$) (Model 1). The difference remains significant after the introduction of strain and its interactions for non-perfectionists, but not maladaptive perfectionists (Model 2).

However, after the introduction of self-control, non-perfectionism loses significance (Model 3) but regains it after the introduction of the other controls ($B = 1.43$, $p < 0.05$) (Model 4). Strain, however, was not significant in any of the models, nor were any of the interactions between strain and perfectionism.

Several controls also had a significant effect on this dependent variable. Self-control was again significant ($B = -0.04$, $p < 0.001$). Additionally, a GPA of between 2.5 and 2.99 had the only significant difference compared to a GPA lower than 2.5 ($B = 1.06$, $p < 0.05$). Females were less likely than males to view the wrongness as context dependent (-0.43, $p < 0.05$). Finally, black participants were more likely to view the wrongness as context dependent ($B = 0.86$, $p < 0.05$) and those in the other race category were less likely to ($B = -1.19$, $p < 0.05$). No other categories or control variables showed significant differences.

Paper Scenario

Table 13 (See Appendix D) shows the results for the extent to which participants viewed the wrongness of paying someone to write a paper for them as being context dependent. In Model 1 we see that both non-perfectionists ($B = 1.46$, $p < 0.01$) and maladaptive perfectionists ($B = 1.24$, $p < 0.05$) were more likely to view the behavior as context dependent. However, after the introduction of strain (Model 2) the effects of perfectionism were no longer significant and stayed that way for the rest of the models. None of the models showed a significant main effect of strain, or an interacting effect between strain and perfectionism.

There were a few significant controls as well. Self-control had a significant negative effect both at its addition (Model 3) and the addition of the other controls ($B = -$

0.05, $p < 0.001$, Model 4). Additionally, two categories of GPA increased the likelihood of students viewing the behavior as context dependent, 2.5 to 2.99 ($B = 1.78$, $p < 0.01$) and N/A ($B = 1.26$, $p < 0.05$), for students in their first semester, when compared to those with a GPA less than 2.5. Having paid for a paper previously did not significantly affect whether participants viewed the behavior as context dependent, nor did any other control variables.

Test Scenario

Finally, Table 14 (See Appendix D) has the results for the extent to which participants viewed the wrongness of taking the Adderall as being context dependent. Interestingly, there are no significant effects of perfectionism until the final model (Model 4). After all the controls are introduced, we see that non-perfectionists were significantly more likely than adaptive perfectionists to view the behavior as context dependent ($B = 2.51$, $p < 0.05$). However, there were no other significant effects of perfectionism. There were also no significant main or interacting effects of strain in any of the models.

A few controls were significant. First, self-control once again had a significant negative in both models in which it appeared ($B = -0.04$, $p < 0.01$, Models 3 and 4), indicating that at high levels of self-control participants viewed taking the Adderall as less context dependent. Having a prescription for Adderall also had a negative effect ($B = -1.37$, $p < 0.05$), as did being female as compared to male ($B = -0.65$, $p < 0.05$). Finally, being black was significantly associated with viewing the wrongness as more context dependent ($B = 2.36$, $p < 0.001$).

Discussion

This study explores three research questions. The first question is, "*Are there differences in the likelihood of engaging in academic deviance by maladaptive perfectionists, adaptive perfectionists, and non-perfectionists?*" Second, the study seeks to answer, "*Are there differences in the perceptions of the wrongness of academic deviance between maladaptive perfectionists, adaptive perfectionists, and non-perfectionists?*" Finally, the last research question is "*Are there differences in how context dependent maladaptive perfectionists, adaptive perfectionists, and non-perfectionists view the wrongness of academic deviance?*" In answering these questions, this study tested three specific hypotheses: (1) maladaptive perfectionists will be the most likely to engage in academic deviance, especially in cases of high strain, and adaptive perfectionists will be the least likely, (2) maladaptive perfectionists will view academic deviance as less wrong than the other two groups, especially in high strain situations, and (3) maladaptive perfectionists will be the most likely to view the wrongness of behaviors as context dependent.

The answer to the first question appears to be no, as none of the models regarding likelihood of engagement showed a significant effect of perfectionism. However, based on the results of the study the answer to the second research question is maybe. There were some effects of perfectionism on how wrong participants perceived the academic deviance to be. However, these results tended to lose significance at the introduction of variables, so the exact effects are unclear. Finally, based on these results the answer to the final research question would be yes, because perfectionism did have effects on context dependency in the models.

With regards to support for the hypotheses, the results are similar to those of the research questions. There was no support for *hypothesis 1*. Perfectionism did not have any significant effects on how likely participants engaged in the given deviant behavior in any of the models. There was also minimal to no support for *hypothesis 2*. Although non-perfectionists were significantly less likely than adaptive perfectionists to view paying someone to write a paper for them as wrong, these effects disappeared with the introduction of self-control, and there were no significant differences in any of the other models. Additionally, across vignettes the same relationship was shown in the first models, but again dropped from significance at the introduction of strain and/or self-control. Finally, there was also partial support for *hypothesis 3*. Maladaptive perfectionists did view the behavior as more context dependent than adaptive perfectionists. However, there were more significant effects for non-perfectionists, in the same directions as those for maladaptive. That is to say, non-perfectionists had a stronger correlation when compared to adaptive perfectionists than maladaptive perfectionists did. Therefore, when compared to adaptive perfectionists, both maladaptive and non-perfectionists were more likely to view these behaviors as context dependent; however, there is not support that maladaptive perfectionists were so to a larger degree than non-perfectionists.

Additionally, and consistent with prior research, self-control does have a significant effect on academic deviance (Bolin, 2004; Bichler-Robertson, Potchak, & Tibbetts, 2003; Reisig, & Pratt, 2011). This relationship could be explained by the fact that individuals who have high self-control may have an easier time focusing and studying, and thus achieve at a higher level. In contrast, individuals with low self-control

may be more easily distracted from work by friends, TV, or snacks, and thus fail to meet the high standards they initially set. Furthermore, the effects of perfectionism tend to become insignificant at the introduction of self-control. Therefore, although there were only modest correlations between these measures, it may be that the elements of perfectionism that have the strongest effects on academic deviance are those most related to elements of self-control.

In sum, perfectionism had minimal significant effects on any of the dependent variables. However, in the cases where perfectionism was significant, the results were in the expected direction. Maladaptive perfectionists were more likely to engage in the behaviors in a few of the models, and they were more likely to view the wrongness of the behaviors as context dependent. Strain, on the other hand, only had a significant main effect for the test scenario, and only on the likelihood of engaging in the behavior. It also had no conditional effects with perfectionism. Furthermore, only a few controls were consistently significant. Self-control had a negative effect in all models, and having previously paid for a paper was consistently positively associated with academic deviance. A few other controls had some significance in a few of the models, but none had enough to draw conclusions about their effects. Taken as a whole, the results suggest that perfectionism does have some small effects, but not to the degree expected, and the effects do not appear to be affected by the manipulation of strain in this study. Strain, however, does appear to have an effect on likelihood of engagement in certain situations.

Theoretical Implications

Strain did not appear to have many significant effects on the engagement and endorsement of academic deviance in this study. However, the strongest effects of

perfectionism were in the models addressing how context dependent participants viewed the wrongness of the behaviors to be. This indicates that strain may play a role in the engagement or endorsement of academic deviance, just not the strain manipulated in this study. The vignette manipulated the amount of strain, high or low, but the context dependency question got more at the source of strain. In each example, the strain was caused as a direct result of the professor's actions, rather than the actions of the student. This suggests that externally-caused strains may be more influential than those that are internally caused. This relates back to Agnew's discussion of unjust strains. He suggested that strains seen as unjust, or in this case caused by the professor, should be more likely to result in deviant or criminal behavior (Agnew, 2014).

Additionally, the effects of strain occur through the experience of negative emotions, which in turn lead to crime and deviance (Agnew, 2014). Therefore, the lack of significant effects of perfectionism could potentially be due to the fact that perfectionists already experience more negative emotions as a result of strain on a daily basis, and so their behaviors are less influenced by the strain manipulation. If they are always experiencing a higher level of stress and anxiety than non-perfectionists, which prior literature suggests that they are (Bieling et al., 2003; Chester et al., 2015; Klibert et al., 2005; Rice & Arsdale, 2010; Yang et al., 2016; Rice et al., 2012), then the additional strain stimulus may not register for them in the way that it does for non-perfectionists. Furthermore, perfectionists may have a different subjective strain experience. These individuals may have seen the low-strain conditions as still stressful, and therefore the increase in strain may not have provided a significant difference in negative emotions. In

other words, perfectionists may not have experienced an increase in negative emotions in response to the strain stimulus, and thus may be less likely to be influenced by it.

Policy Implications

Although perfectionism was only significant in a few of the models in this study, there is still evidence that it may play a role in engaging in academic deviance. Perfectionism did seem to have the largest impact on whether or not the participant viewed the behavior as context dependent, as compared to likelihood and wrongness. This may imply that the situations provided in the vignettes were not adequate to assess the full effects of perfectionism. Therefore, policies based on reducing maladaptive perfectionistic thoughts are likely to still have a positive impact on reducing academic deviance in situations the individual perceives to be out of their control. To this end, opportunities on campus for CBT and self-compassion interventions could be beneficial (Egan & Hine, 2008; Ferrari et al., 2018). Following a CBT intervention over the course of 8 sessions and a 2-week follow-up session, overall perfectionism decreased for the four participants, and the decrease was clinically significant for two of the participants (Egan & Hine, 2008). Although the sample size was small in that study, this shows that CBT could have important implications for individuals with perfectionism. Similarly, self-compassion can help individuals unconditionally accept their own failings. Thus, after failing the reach their goals, individuals who were once maladaptive could learn to reframe their thinking and thus reduce the consequences of this form of perfectionism (Ferrari et al., 2018).

As mentioned, interventions such as these can help universities reduce academic deviance. If perfectionistic thoughts, especially maladaptive ones, increase participation

in academic deviance, then the reduction of these thoughts should, logically, decrease the deviance as well. As discussed previously, academic deviance can cause serious issues for institutions of higher learning (e.g., inability to accurately assess students' abilities and knowledge and potential legal consequences), and thus these institutions are motivated to reduce the behaviors as much as possible. Furthermore, not only will these interventions benefit the university by reducing instances of dishonesty, but also they will benefit the students who participate by giving them the tools they need to cope with negative perfectionistic thoughts. Therefore, if future research is able to build upon the results found here and establish a clear link between perfectionism and academic deviance, it would be in the best interest of universities to provide self-compassion and counseling resources to students.

Limitations

Despite its contribution to the literature, this study is not without limitations. First, the measure of academic dishonesty only included two possible forms of dishonesty, paying someone to write a paper and taking Adderall without a prescription. Future research should investigate other types of academic dishonesty that can be influenced by different factors (e.g., copying someone else's homework). Similarly, there are many kinds of perfectionism not included in this study (e.g., parent-ascribed or other-oriented). It may be that these kinds of perfectionism are more likely to influence academic dishonesty than self-oriented perfection. In particular, parent- or socially-prescribed perfectionism may have a greater influence due to the external pressure associated with these kinds of perfectionism. Future research should investigate this. Furthermore, there was limited variability in the dependent variables with the majority of participants

indicating that they would not engage in the behavior, that it was wrong, and that it was not context dependent.

There were also some limitations of the design itself. First, there is a potential for study design effects. Participants were all given the vignette first and answered perfectionism and self-control questions after completing the questions related to the dependent variables. Thus, it is possible that their answers on these scales were influenced by what they said earlier and became a justification for the behaviors they indicated. There were also difficulties with the manipulation checks, and a large proportion of the sample had to be dropped. While dropping cases is common when using vignettes, especially when administered online, there were significant differences on the main variables in this study between the cases kept and cases dropped (see Appendix C). This may have been due to the fact that perfectionists were more likely to read all aspects of the survey carefully and take their time when answering the questions. Similarly, those more willing to engage in academic deviance may have been less motivated to take their time throughout the survey. Furthermore, if they rushed through the survey to received extra credit, this could be another form of academic deviance. Future research should look into how these dynamics may influence participants when taking surveys addressing these concepts.

Additionally, there are some limitations to the sample in this study. The study was only conducted at one university, and it may not generalize to samples with different demographics. To fully understand the relationships at play, the study would need to be replicated in a variety of universities, as well as in high schools and middle schools to examine if the results are robust against age and maturity.

Future research should continue to study this relationship not only with self-prescribed perfectionism, but with other forms as well. Of particular interest would be socially-prescribed perfectionism. This may have stronger effects as the pressure to perform is from external rather than internal sources, and thus the individual may lack motivation to use the sanctioned means to reach the end goal. Furthermore, future research should evaluate the results when the strain is outside the control of the individual (e.g., if they are given a short time frame to work on an assignment). Finally, future research should look in to a potential interaction between perfectionism and self-control. It is possible that the effects of maladaptive perfectionism may be seen only in cases where the individual has low self-control.

Conclusion

Overall, this study provided a foundation to the understanding the connections between perfectionism, strain, self-control, and academic deviance. To do this, the study used primary data collected from the undergraduate population at Arizona State University. The results of the ordered logistic regressions suggested a mild impact of perfectionism, particularly on the perception of the context dependency of academically deviant behaviors. However, this significance was often lost in the full models when controls were introduced. Furthermore, strain did not have a significant effect as manipulated in the vignettes, but the results regarding context dependency still suggest a potential influence. Ultimately, this study shows that perfectionism does influence academic dishonesty, especially when outside influences increase the strain experienced by the student. Therefore, policies should focus on reducing strain when possible, helping

individuals cope with strain when inevitably experienced, and giving students the tools they need to reduce their maladaptive perfectionistic thoughts.

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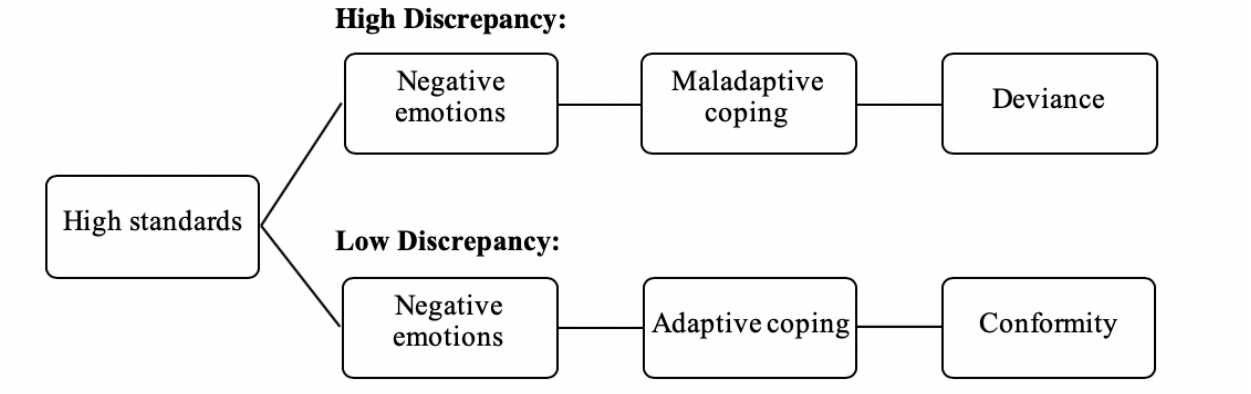
APPENDIX A

MODEL USING GENERAL STRAIN THEORY

Figure 1: Proposed relationship between perfectionism and deviance



APPENDIX B

SURVEY

PART I: VIGNETTES

1. Are you a Barrett honors student? (this will randomly appear either before or after vignettes to manipulate salience)

Imagine yourself in the following scenario. You will be asked questions about the scenario after reading, so please pay careful attention to the details of the story.

You have a research paper for your science class [due in a month/ due tomorrow] and you know you [have plenty of time to write it/don't have time to write it]. You remember your friend occasionally writes papers for other students to make some extra cash, and can do so by the time it is due [in a month/tomorrow].

1. How wrong would it be to pay your friend to write the paper?

Not wrong at all Not wrong Unsure Wrong Very wrong

2. Would it change how wrong the behavior is if the professor only gave you a short amount of time for the assignment (i.e. just a weekend)?

Not at all Slightly Moderately Very Extremely

3. What is the likelihood that you would pay your friend to write the paper?

Not likely at all Not likely Unsure Likely Very likely

4. Imagine your best friend in this scenario, how likely would they be to pay their friend to write their paper?

Not likely at all Not likely Unsure Likely Very likely

MANIPULATION CHECKS

Please indicate how much you agree with the following:

5. I can imagine this scenario

Strongly disagree Disagree Neutral Agree Strongly Agree

6. The scenario was realistic

Strongly disagree Disagree Neutral Agree Strongly Agree

7. I would experience stress completing the assignment as described in the scenario

Strongly disagree Disagree Neutral Agree Strongly Agree

8. When is the assignment described in the scenario due?
    a. In a week
    b. Tomorrow
    c. In two weeks
    d. In a month

Imagine yourself in the following scenario. You will be asked questions about the scenario after reading, so please pay careful attention to the details of the story

You have a final exam coming up and you [are doing well in the class/are failing the class]. It's the night before the test and you have been studying all day. You [feel prepared, but want to keep reviewing/feel unprepared and need to keep studying], but you are having trouble focusing. If you do not do well on this exam, it [will not matter because you are doing well in the class/will matter because you are failing the class.] You notice your roommate left their Adderall, a stimulant that would help you concentrate, out on the table.

1. How wrong would it be to take the Adderall to help you keep studying?

Not wrong at all Not wrong Unsure Wrong Very wrong

2. Would it change how wrong the behavior is if the professor was known to ask questions on exams that were not in the review?

Not at all Slightly Moderately Very Extremely

3. What is the likelihood that you would consume the Adderall to help you keep studying?

Not likely at all Not likely Unsure Likely Very likely

4. Imagine your best friend in this scenario, how likely would they be take the Adderall to keep studying?

Not likely at all Not likely Unsure Likely Very likely

MANIPULATION CHECKS

Please indicate how much you agree with the following:

5. I can imagine this scenario

Strongly disagree Disagree Neutral Agree Strongly Agree

6. The scenario was realistic

Strongly disagree Disagree Neutral Agree Strongly Agree

7. I would experience stress studying for the exam as described in the scenario

Strongly disagree Disagree Neutral Agree Strongly Agree

8. Which of the following describes how well you are doing in the class, as described in the above scenario?
    a. Failing
    b. Just getting by
    c. Doing well
    d. Just okay

PART 2: RECENT BEHAVIORS

1. In the past 30 days, how often have you felt stressed or anxious? (Likert scale)

Never Sometimes Often Almost always Always

2. In the past 30 days, how often have you coped with stress in the following ways (Likert scale)

a. Exercising

Never Sometimes Often Almost always Always

b. Spending time with friends

Never Sometimes Often Almost always Always

c. Meditation/prayer

Never Sometimes Often Almost always Always

d. Going to therapy

Never Sometimes Often Almost always Always

e. Focusing on something else to take your mind off things

Never Sometimes Often Almost always Always

f. Having a couple of drinks

Never Sometimes Often Almost always Always

g. Drinking to the point of blacking out

Never Sometimes Often Almost always Always

h. Using marijuana

Never Sometimes Often Almost always Always

i. Using hard drugs such as cocaine or heroin

Never Sometimes Often Almost always Always

j. Other, please specify

Never Sometimes Often Almost always Always

3. Have you ever paid someone to write a paper for you?
   a. Yes
   b. No
   c. Other?

4. What percent of college students do you believe have paid someone to write a paper for them?

5. Do you have a prescription for Adderall?
    a. Yes
    b. No
    c. Other?

6. Have you ever consumed Adderall without a prescription?
    a. Yes
    b. No
    c. Other?

7. What percent of college students do you believe have consumed Adderall without a prescription?

PART 3: PERFECTIONISM

Almost Perfect Scale-Revised
(Slaney et al., 1996, 2001)

The following items are designed to measure certain attitudes people have toward themselves, their performance, and toward others. It is important that your answers be true and accurate for you. In the space next to the statement, please enter a number from "1" (strongly disagree) to "7" (strongly agree) to describe your degree of agreement with each item.

STRONGLY DISAGREE 1	DISAGREE 2	SLIGHTLY DISAGREE 3	NEUTRAL 4	SLIGHTLY AGREEE 5	AGREE 6	STRONGLY AGREE 7

_____ 1. I have high standards for my performance at work or at school.
_____ 2. I am an orderly person.
_____ 3. I often feel frustrated because I can't meet my goals.
_____ 4. Neatness is important to me.
_____ 5. If you don't expect much out of yourself you will never succeed.
_____ 6. My best just never seems to be good enough for me.
_____ 7. I think things should be put away in their place.
_____ 8. I have high expectations for myself.
_____ 9. I rarely live up to my high standards.
_____ 10. I like to always be organized and disciplined.
_____ 11. Doing my best never seems to be enough.
_____ 12. I set very high standards for myself.
_____ 13. I am never satisfied with my accomplishments.
_____ 14. I expect the best from myself.
_____ 15. I often worry about not measuring up to my own expectations.
_____ 16. My performance rarely measures up to my standards.
_____ 17. I am not satisfied even when I know I have done my best.
_____ 18. I am seldom able to meet my own high standards for performance.
_____ 19. I try to do my best at everything I do.
_____ 20. I am hardly ever satisfied with my performance.
_____ 21. I hardly ever feel that what I've done is good enough.
_____ 22. I have a strong need to strive for excellence.
_____ 23. I often feel disappointment after completing a task because I know I could have done better.

PART 4: SELF-CONTROL

Self-control (Tangney et al., 2004)

1	2	3	4	5
Not at all true of me				Very true of me

These items are coded 1-5 where 1 is “not at all true of me” and 5 is “very true of me”

1. I am good at resisting temptation
2. I have a hard time breaking bad habits
3. I am lazy
4. I say inappropriate things
5. I do certain things that are bad for me if they are fun
6. I refuse things that are bad for me
7. I wish I had more self-discipline
8. People would say that I have “iron” self-discipline
9. Pleasure and fun sometimes keep me from getting work done
10. I have trouble concentrating
11. I am able to work effectively toward long-term goals
12. Sometimes I can’t stop myself from doing something, even if I know it is wrong
13. I often act without thinking through the alternatives

PART 5: DEMOGRAPHICS

8. What gender do you identify with?
    a. Male
    b. Female
    c. Transgender
    d. Other (Please specify)
9. What race and/or ethnicity do you identify with? (Mark all the apply)
    a. Asian
    b. Black
    c. Hispanic
    d. Hawaiian/Pacific Islander
    e. Native American
    f. White
    g. Other (Please specify)
10. How old are you?
11. How many college credits have you completed? Do not include any that are in progress.
12. What is your current cumulative GPA? (if this is your first semester, please enter N/A)
13. How do you take a majority of your classes?
    a. In person
    b. Online
    c. About 50/50
14. What is your college?

    a. W.P. Carey School of Business
    b. Herberger Institute for Design and the Arts
    c. Mary Lou Fulton Teachers College
    d. Ira A. Fulton Schools of Engineering
    e. School for the Future of Innovation in Society
    f. College of Health Solutions
    g. College of Integrative Sciences and Arts
    h. New College of Interdisciplinary Arts and Sciences
    i. Walter Cronkite School or Journalism and Mass Communication
    j. Sandra Day O'Connor College of Law
    k. The College of Liberal Arts and Sciences
    l. Edson College of Nursing and Health Innovation
    m. Watts College of Public Services and Community Solutions
    n. School of Sustainability
    o. Thunderbird School of Global Management
    p. Other

PART 6: RAFFLE ENTRY

If you wish to be entered into the raffle for the Visa pre-paid gift cards, follow the URL below to a secondary survey to enter your email address.

PART 7: EXTRA CREDIT SUBMISSION

If your professor has offered extra credit for this study, please follow this URL below. Screenshot the page displayed and submit directly to your professor. Please DO NOT send the screenshot to the researcher.

APPENDIX C

MANIPULATION CHECKS

First, manipulation checks were conducted to test whether or not the participant read the vignette correctly. They also asked participants if they felt that the if the vignettes were imaginable, realistic, and stressful. Full results of the manipulation checks can be found in Table 1 in this appendix. For the scenario involving paying someone to write a paper, the accuracy check asked the participant when the paper was due in the described condition. Two hundred and seventy-four of the participants who completed the survey got the paper vignette with low strain, when the paper was due in a month. Of these participants, 163 (59%) answered the question correctly. Of those, 102 (63%) somewhat or strongly agreed they would experience strain in the scenario described. For the high strain paper condition, when the paper was due the next day, 279 participants received the condition and 203 (73%) answered the accuracy check correctly. Of those, 181 (90%) somewhat or strongly agreed that they would experience strain in the scenario as described. These findings indicated a mild manipulation of strain. Furthermore, for both conditions approximately 75% indicated that they could imagine the scenario, and approximately 80% indicated that the scenario was realistic.

For the scenario involving taking Adderall to help the study, the accuracy check asked how well the participant was doing in the class as described in the scenario. Two hundred and eighty-four participants received the low strain condition, in which they were doing well in the class, and 207 (73%) answered the check correctly. A much lower percentage answered the high strain check, where they were failing the class, correctly. Only 123 participants of the 288 who received the vignette answered correctly (43%). Participants in the test condition generally indicated they could imagine the scenario (72% for low strain, 80% for high strain) and that the scenario was realistic (73% for low

strain, 83% for high strain). There was also indication that the high strain condition was in fact viewed as more stressful as 76% in the low strain condition said they would experience stress from the scenario and 96% indicated as such in the high strain condition.

Respondents who answered the manipulation checks incorrectly were dropped from the sample. To assess any potential differences between those who were dropped from the sample and those who were kept, chi square tests were run, the results of which are shown in Table 2 in this appendix. There were no significant differences between the groups on having an Adderall prescription, all race categories except for white, and self-control. There were, however, differences on all other variables. Dropped participants were more likely to be maladaptive perfectionists. They were also more likely to engage in the behavior, less likely to believe the behavior was wrong, and more likely to view the wrongness of the behavior as context dependent. Lastly, those in the dropped sample were more likely to have paid for a paper before, be non-white, be male, and have a low GPA.

Table 1: Manipulation Checks

	Low-strain condition Frequency (percent)	High-strain condition Frequency (percent)
Paper Scenario		
Accuracy check		
Incorrect	111 (40.51)	79 (27.24)
Correct	163 (59.49)	203 (72.76)
Would experience stress		
Strongly agree	60 (37.04)	140 (69.31)
Somewhat agree	42 (25.93)	41 (20.30)
Neutral	21 (12.96)	11 (5.45)
Somewhat disagree	27 (16.67)	13 (6.47)
Strongly disagree	12 (7.41)	8 (3.98)
Can imagine the scenario		
Strongly agree	75 (46.01)	98 (48.28)
Somewhat agree	49 (30.67)	55 (27.09)
Neutral	10 (6.13)	15 (7.39)
Somewhat disagree	12 (7.36)	23 (11.33)
Strongly disagree	10 (6.13)	12 (5.91)
The scenario was realistic		
Strongly agree	81 (49.69)	102 (50.75)
Somewhat agree	50 (30.67)	63 (31.34)
Neutral	10 (6.13)	15 (7.46)
Somewhat disagree	12 (7.36)	13 (6.47)
Strongly disagree	10 (6.13)	8 (3.98)
Studying for a Test Scenario		
Accuracy check		
Incorrect	77 (27.11)	165 (57.29)
Correct	207 (72.89)	123 (42.71)
Would experience stress		
Strongly agree	84 (40.78)	96 (78.05)
Somewhat agree	73 (35.44)	22 (17.89)
Neutral	18 (8.74)	1 (0.81)
Somewhat disagree	15 (7.28)	2 (1.63)
Strongly disagree	16 (7.77)	2 (1.63)
Can imagine the scenario		
Strongly agree	79 (38.16)	62 (50.41)
Somewhat agree	69 (33.33)	37 (30.08)
Neutral	13 (6.28)	6 (4.88)
Somewhat disagree	21 (10.14)	8 (6.50)
Strongly disagree	25 (12.08)	10 (8.13)
The scenario was realistic		
Strongly agree	86 (41.95)	55 (45.45)
Somewhat agree	64 (31.22)	45 (37.19)
Neutral	16 (7.80)	9 (7.44)
Somewhat disagree	23 (11.22)	7 (5.79)
Strongly disagree	16 (7.80)	5 (4.13)

Table 2. Differences in all variables between dropped and kept cases

	Failed Manipulation Check n/Mean (%/SD)	Passed Manipulation Check n/Mean (%/SD)	Chi-Square
How likely			10.608*
Extremely unlikely	268 (35.92)	478 (64.08)	
Somewhat unlikely	72 (42.60)	97 (57.40)	
Neutral	39 (52.70)	35 (47.30)	
Somewhat likely	48 (40.68)	70 (59.32)	
Extremely likely	14 (46.67)	16 (53.33)	
How wrong			25.871***
Not at all wrong	18 (58.06)	13 (41.94)	
Not wrong	50 (55.56)	40 (44.44)	
Unsure	37 (49.33)	38 (50.67)	
Wrong	154 (38.99)	241 (61.01)	
Very wrong	182 (33.33)	364 (66.67)	
Context dependent			23.160***
Not at all	262 (34.52)	497 (65.48)	
Slightly	71 (43.03)	94 (56.97)	
Moderately	57 (46.72)	65 (53.28)	
Very	33 (61.11)	21 (38.89)	
Extremely	18 (48.65)	19 (51.35)	
Perfectionism			23.447***
Non-Perfectionist	244 (38.73)	386 (61.27)	
Adaptive	38 (37.25)	64 (62.75)	
Maladaptive	270 (52.33)	246 (47.64)	
Ever paid for a paper			0.005
Yes	10 (43.48)	13 (56.52)	
No	542 (38.38)	683 (61.62)	
Have an Adderall prescription			0.043
Yes	16 (37.21)	27 (62.79)	
No	422 (38.79)	666 (61.21)	
Race/Ethnicity			
Asian	52 (48.60)	66 (51.40)	0.905
Black	30 (43.48)	39 (56.52)	0.017
Hispanic	140 (44.44)	175 (55.56)	0.0078
White	215 (31.39)	470 (68.61)	101.548***
Other	28 (43.08)	37 (56.92)	0.037
Gender			10.626**
Male	131 (46.13)	153 (53.87)	
Female	279 (35.18)	514 (64.82)	
Other	6 (37.50)	10 (62.50)	
GPA			101.749***
< 2.5	173 (71.78)	68 (28.22)	
2.5 – 2.99	30 (37.97)	49 (62.03)	
3 – 3.49	113 (43.63)	146 (56.37)	
3.5 – 3.99	114 (34.55)	216 (65.45)	
4.0 +	20 (25.64)	58 (74.36)	
N/A	102 (39.08)	159 (30.92)	
Self-control			41.038
	41.704 (9.51)	41.789 (9.58)	

*** p<0.001, ** p<0.01, * p<0.05

APPENDIX D

TABLES

Table 1: Demographics of sample and population

	Study Sample Frequency (%)	University Population Frequency (%)
Race/Ethnicity		
Asian	55 (7.90)	4,869 (7.8)
Black	39 (5.60)	2,630 (4.2)
Hispanic	175 (25.14)	15,740 (25.3)
White	470 (67.33)	29,721 (47.8)
Other	37 (5.32)	9,226 (14.8)
Gender		
Male	153 (22.60)	31,980 (51.4)
Female	514 (75.92)	30,206 (48.6)
Other	10 (1.48)	-
N =	696	62,186

Table 2. Differences in independent and control variables between vignettes

	Paper Low strain n/Mean (%/SD)	Paper High Strain n/Mean (%/SD)	Test Low Strain n/Mean (%/SD)	Test High strain n/Mean (%/SD)	Chi-Square
Perfectionism					2.436
Non-Perfectionist	88 (22.80)	110 (28.50)	122 (31.61)	66 (17.10)	
Adaptive	15 (23.44)	22 (34.38)	15 (23.44)	12 (18.75)	
Maladaptive	60 (24.39)	71 (28.86)	70 (28.46)	45 (18.29)	
Ever paid for a paper					8.070
Yes	5 (38.46)	5 (38.46)	2 (15.38)	1 (7.69)	
No	157 (23.22)	197 (29.14)	200 (29.59)	122 (18.05)	
Other	0 (0.00)	0 (0.00)	2 (100.00)	0 (0.00)	
Have an Adderall prescription					3.730
Yes	5 (18.52)	5 (18.52)	9 (33.33)	8 (29.63)	
No	157 (23.57)	197 (29.58)	197 (29.58)	115 (17.27)	
Race/Ethnicity					
Asian	15 (27.27)	16 (29.09)	11 (20.00)	13 (23.64)	3.486
Black	9 (23.08)	13 (33.33)	14 (35.90)	3 (7.69)	3.103
Hispanic	40 (22.86)	43 (24.57)	54 (30.86)	38 (21.71)	3.983
White	108 (22.98)	141 (30.00)	135 (28.72)	86 (18.30)	1.290
Other	10 (27.03)	10 (27.03)	10 (27.03)	7 (18.92)	0.410
Gender					7.37
Male	32 (20.92)	40 (26.14)	49 (32.03)	32 (20.92)	
Female	126 (24.51)	156 (30.35)	144 (28.02)	88 (17.12)	
Other	1 (10.00)	5 (50.00)	4 (40.00)	0 (0.00)	
GPA					11.9949
< 2.5	12 (17.65)	21 (30.88)	24 (35.29)	11 (16.18)	
2.5 – 2.99	14 (28.57)	13 (26.53)	13 (26.53)	9 (18.37)	
3 – 3.49	43 (29.45)	43 (29.45)	39 (26.71)	21 (14.38)	
3.5 – 3.99	49 (22.69)	62 (28.70)	60 (27.78)	45 (20.83)	
4.0 +	10 (17.24)	22 (37.93)	17 (29.31)	9 (15.52)	
N/A	35 (22.01)	42 (26.42)	54 (33.96)	28 (17.67)	
Self-control					136.045
	39.733 (9.11)	40.754 (9.35)	42.791 (10.07)	43.031 (9.27)	

*** p<0.001, ** p<0.01, * p<0.05

Table 3: Variable coding schema

How likely	
Extremely unlikely	0
Somewhat unlikely	1
Neutral	2
Somewhat likely	3
Extremely likely	4
How wrong	
Not at all wrong	0
Not wrong	1
Unsure	2
Wrong	3
Very wrong	4
Context dependent	
Not at all	0
Slightly	1
Moderately	2
Very	3
Extremely	4
Perfectionism	
Non-Perfectionist	0
Adaptive	1
Maladaptive	2
Strain	
Low strain	0
High strain	1
Ever paid for a paper	
Yes	1
No	0
Have an Adderall prescription	
Yes	1
No	0
Race/Ethnicity	
Asian	0 = no, 1 = yes
Black	0 = no, 1 = yes
Hispanic	0 = no, 1 = yes
White	0 = no, 1 = yes
Other	0 = no, 1 = yes
Gender	
Male	0
Female	1
Other	2
GPA	
< 2.5	0
2.5 – 2.99	1
3 – 3.49	2
3.5 – 3.99	3
4.0 +	4
N/A	5
Self-control	Continuous

Table 4: Variance Inflation Factor (VIF)

Perfectionism	1.02
Self-control	1.04
Vignettes	1.02
Ever paid for a paper	1.02
Have an Adderall prescription	1.03
Asian	1.43
Black	1.23
Hispanic	1.85
White	2.11
Other	1.13
Gender	1.02
GPA	1.02
Mean VIF	1.24

Table 5: Descriptive statistics for all variables of interest

	Frequency/mean (%/SD)
How likely	
Extremely unlikely	478 (68.68)
Somewhat unlikely	97 (13.94)
Neutral	35 (5.03)
Somewhat likely	70 (10.06)
Extremely likely	16 (2.30)
How wrong	
Not at all wrong	13 (1.87)
Not wrong	40 (5.75)
Unsure	38 (5.46)
Wrong	241 (34.63)
Very wrong	364 (52.30)
Context dependent	
Not at all	497 (71.41)
Slightly	94 (13.51)
Moderately	65 (9.34)
Very	21 (3.02)
Extremely	19 (2.73)
Perfectionism	
Non-perfectionist	386 (55.46)
Adaptive Perfectionist	64 (9.20)
Maladaptive Perfectionist	246 (35.34)
Ever paid for a paper	
Yes	13 (1.87)
No	683 (98.13)
Have an Adderall prescription	
Yes	27 (3.90)
No	666 (96.10)
Race/Ethnicity	
Asian	55 (7.90)
Black	39 (5.60)
Hispanic	175 (25.14)
White	470 (67.33)
Other	37 (5.32)
Gender	
Male	153 (22.60)
Female	514 (75.92)
Other	10 (1.48)
GPA	
< 2.5	68 (9.77)
2.5 – 2.99	49 (7.04)
3.0 – 3.49	146 (20.98)
3.5 – 3.99	216 (31.03)
4.0+	58 (8.33)
N/A	159 (22.84)
Self-Control	41.789 (9.58)

Note: The race question asked participants to choose all that apply, and thus percentages do not add to 100%

Table 6: Ordered logit of likelihood of engaging in academic deviance

	n = 696 B (SE)	n = 696 B (SE)	n = 663 B (SE)	n = 659 B (SE)
Perfectionism				
Non-perfectionists	0.46 (0.32)	0.62(0.51)	0.16 (0.53)	0.35 (0.56)
Maladaptive perfectionists	0.59 (0.33)	0.91 (0.52)	0.46 (0.54)	0.76 (0.57)
High strain condition		0.69 (0.62)	1.06 (0.16)	1.32 (0.35)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		-0.21 (0.66)	-0.49 (0.68)	-0.67 (0.72)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		-0.55 (0.68)	-0.81 (0.70)	-1.10 (0.74)
Self-control			-0.07 (0.01)***	-0.07 (0.01)***
GPA				
2.5 - 2.99				0.75 (0.44)
3.0 – 3.49				0.51 (0.37)
3.5 – 3.99				0.08 (0.36)
4.0 +				-0.46 (0.52)
N/A				0.09 (0.37)
Ever paid for a paper before				1.66 (0.55)**
Have a prescription for Adderall				-0.04 (0.44)
Gender				
Female				-0.48 (0.20)*
Other				-0.97 (0.76)
Race				
Asian				-0.44 (0.38)
Black				-0.37 (0.44)
Hispanic				-0.10 (0.28)
White				-0.22 (0.28)
Other				0.08 (0.37)
Intercept 1	1.25 (0.30)***	1.64 (0.49)***	-1.67 (0.66)*	-1.63 (1.14)
Intercept 2	2.03 (0.31)***	2.42 (0.49)***	-0.82 (0.65)	-0.73 (1.14)
Intercept 3	2.43 (0.31)***	2.82 (0.49)***	-0.37 (0.66)	-0.26 (1.14)
Intercept 4	4.22 (0.39)***	4.62 (0.54)***	1.58 (0.70)*	1.73 (1.16)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 7: Ordered logit of likelihood of paying someone to write the paper

	n = 366 B (SE)	n = 366 B (SE)	n = 349 B (SE)	n = 349 B (SE)
Perfectionism				
Non-perfectionists	0.98 (0.50)	0.79 (0.79)	0.47 (0.81)	0.77 (0.94)
Maladaptive perfectionists	1.04 (0.51)*	0.97 (0.81)	0.61 (0.83)	0.99 (0.95)
High strain condition		0.02 (0.97)	0.46 (1.00)	0.30 (1.18)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		0.33 (1.03)	0.10 (1.05)	0.51 (1.23)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		0.12 (1.05)	-0.01 (1.08)	0.16 (1.26)
Self-control			-0.07 (0.01)***	-0.06 (0.02)***
GPA				
2.5 - 2.99				1.37* (0.67)
3.0 – 3.49				1.41* (0.59)
3.5 – 3.99				0.62 (0.59)
4.0 +				-0.30 (0.93)
N/A				0.90(0.60)
Ever paid for a paper before				2.90 (0.64)***
Gender				
Female				-0.13 (0.33)
Other				-0.49 (1.02)
Race				
Asian				-0.55 (0.58)
Black				-0.30 (0.64)
Hispanic				0.51 (0.44)
White				-0.07 (0.44)
Other				0.20 (0.57)
Intercept 1	1.93 (0.48)***	1.94 (0.75)*	-0.88 (0.96)	0.67 (1.32)
Intercept 2	2.77 (0.49)***	2.79 (0.76)***	0.02 (0.96)	1.70 (1.33)
Intercept 3	3.31 (0.50)***	3.33 (0.77) ***	0.65 (0.97)	2.43 (1.34)
Intercept 4	5.73 (0.75)***	5.75 (0.95) ***	4.07 (1.37)**	6.12 (1.68)***

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 8: Ordered logit of likelihood of taking the Adderall without a prescription

	n = 330 B (SE)	n = 330 B (SE)	n = 314 B (SE)	n = 311 B (SE)
Perfectionism				
Non-perfectionists	-0.09 (0.43)	0.44 (0.67)	-0.31 (0.70)	0.07 (0.74)
Maladaptive perfectionists	0.13 (0.44)	0.83 (0.69)	0.18 (0.72)	0.68 (0.77)
High strain condition		1.73 (0.85)*	1.84 (0.86)*	2.41 (0.91)**
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		-0.95 (0.90)	-1.08 (0.92)	-1.58 (0.96)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		-1.41 (0.93)	-1.69 (0.95)	-2.22 (1.00)*
Self-control			-0.08 (0.01)***	-0.08 (0.01)***
GPA				
2.5 - 2.99				0.32 (0.62)
3.0 – 3.49				-0.06 (0.53)
3.5 – 3.99				-0.36 (0.51)
4.0 +				-0.68 (0.68)
N/A				-0.53 (0.51)
Has a prescription for Adderall				-0.48 (0.53)
Gender				
Female				-0.67 (0.29)*
Other				-1.13 (1.26)
Race				
Asian				-0.23 (0.53)
Black				0.18 (0.64)
Hispanic				-0.75 (0.39)
White				-0.30 (0.39)
Other				0.12 (0.52)
Intercept 1	0.55 (0.41)	1.38 (0.64)*	-2.75 (0.94)**	-4.22 (1.45)**
Intercept 2	1.29 (0.41)**	2.13 (0.65)***	-1.90 (0.93)*	-3.32 (1.45)*
Intercept 3	1.60 (0.41)***	2.46 (0.65)***	-1.55 (0.93)	-2.96 (1.44)*
Intercept 4	3.19 (0.48)***	4.07 (0.70)***	0.15 (0.95)	-1.22 (1.45)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 9: Ordered logit of perceptions of wrongness of academic deviance

	n = 696 B (SE)	n = 696 B (SE)	n = 663 B (SE)	n = 659 B (SE)
Perfectionism				
Non-perfectionists	-0.66 (0.27)*	-0.75 (0.40)	-0.50 (0.43)	-0.49 (0.44)
Maladaptive perfectionists	-0.33 (0.29)	-0.46 (0.42)	-0.21 (0.45)	-0.26 (0.46)
High strain condition		-0.24 (0.52)	-0.49 (0.55)	-0.59 (0.56)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		0.16 (0.55)	0.34 (0.58)	0.42 (0.59)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		0.25 (0.57)	0.44 (0.61)	0.57 (0.62)
Self-control			0.06 (0.01)***	0.06 (0.01)***
GPA				
2.5 - 2.99				-0.22 (0.42)
3.0 – 3.49				-0.15 (0.34)
3.5 – 3.99				-0.23 (0.33)
4.0 +				-0.38 (0.41)
N/A				-0.27 (0.34)
Ever paid for a paper before				-0.51 (0.57)
Have a prescription for Adderall				-0.54 (0.43)
Gender				
Female				0.32 (0.19)
Other				0.94 (0.66)
Race				
Asian				0.09 (0.32)
Black				0.48 (0.40)
Hispanic				0.08 (0.24)
White				-0.04 (0.24)
Other				0.21 (0.34)
Intercept 1	-4.47 (0.38)***	-4.60 (0.47)***	-2.41 (0.63)***	-3.32 (1.11)**
Intercept 2	-3.00 (0.29)***	-3.13 (0.40)***	-0.81 (0.57)	-1.73 (1.08)
Intercept 3	-2.40 (0.27)***	-2.53 (0.39)***	-0.14 (0.56)	-1.05 (1.07)
Intercept 4	-0.58 (0.26)*	-0.71 (0.38)	1.80 (0.56)**	0.92 (1.07)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 10: Ordered logit of wrongness perceptions of paying someone to write the paper

	n = 366 B (SE)	n = 366 B (SE)	n = 349 B (SE)	n = 349 B (SE)
Perfectionism				
Non-perfectionists	-1.17 (0.42)**	-1.70 (0.78)*	-1.44 (0.80)	-1.34 (0.83)
Maladaptive perfectionists	-0.65 (0.44)	-1.25 (0.81)	-1.03 (0.83)	-1.10 (0.85)
High strain condition		-0.86 (0.89)	-1.17 (0.94)	-1.18 (0.98)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		0.80 (0.93)	0.85 (0.98)	0.69 (1.02)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		0.92 (0.97)	0.98 (1.02)	1.00 (1.06)
Self-control			0.07 (0.01)***	0.07 (0.01)***
GPA				
2.5 - 2.99				-0.58 (0.65)
3.0 – 3.49				-1.00 (0.54)
3.5 – 3.99				-0.68 (0.53)
4.0 +				-0.87 (0.65)
N/A				-1.29* (0.55)
Ever paid for a paper before				-1.48* (0.65)
Gender				
Female				0.37 (0.30)
Other				1.18 (0.97)
Race				
Asian				-0.31 (0.45)
Black				0.45 (0.58)
Hispanic				-0.25 (0.39)
White				-0.16 (0.38)
Other				-0.39 (0.50)
Intercept 1	-5.44 (0.64)***	-6.00 (0.91)***	-3.77 (1.16)**	-4.73 (1.37)***
Intercept 2	-4.08 (0.47)***	-4.65 (0.80)***	-1.84 (0.96)	-2.78 (1.21)*
Intercept 3	-3.54 (0.44)***	-4.11 (0.78)***	-1.22 (0.94)	-2.15 (1.19)
Intercept 4	-1.32 (0.40)***	-1.89 (0.76)*	1.20 (0.94)	0.36 (1.19)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 11: Ordered logit of wrongness perceptions of taking the Adderall

	n = 330 B (SE)	n = 330 B (SE)	n = 314 B (SE)	n = 311 B (SE)
Perfectionism				
Non-perfectionists	-0.12 (0.39)	-0.18 (0.51)	0.21 (0.55)	0.30 (0.58)
Maladaptive perfectionists	0.08 (0.40)	0.00 (0.53)	0.42 (0.57)	0.47 (0.60)
High strain condition		-0.48 (0.74)	-0.59 (0.75)	-0.44 (0.79)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		0.10 (0.79)	0.27 (0.81)	0.18 (0.84)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		0.18 (0.82)	0.39 (0.84)	0.14(0.88)
Self-control			0.05 (0.01)***	0.06 (0.01)***
GPA				
2.5 - 2.99				0.08 (0.58)
3.0 – 3.49				0.29 (0.48)
3.5 – 3.99				-0.03 (0.45)
4.0 +				-0.42 (0.56)
N/A				0.39 (0.46)
Has a prescription for Adderall				-0.59 (0.55)
Gender				
Female				0.28 (0.27)
Other				1.04 (0.98)
Race				
Asian				0.56 (0.49)
Black				0.34 (0.59)
Hispanic				0.47 (0.33)
White				-0.03 (0.34)
Other				0.56 (0.52)
Intercept 1	-3.62 (0.49)***	-3.83 (0.58)***	-1.43 (0.83)	-1.84 (1.41)
Intercept 2	-2.08 (0.39)***	-2.29 (0.50)***	0.10 (0.77)	-0.33 (1.38)
Intercept 3	-1.43 (0.37)***	-1.64 (0.49)***	0.82 (0.77)	0.42 (1.38)
Intercept 4	0.24 (0.36)	0.05 (0.48)	2.59 (0.78)***	2.26 (1.38)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 12: Ordered logit of context dependency of wrongness of academic deviance

	n = 696 B (SE)	n = 696 B (SE)	n = 663 B (SE)	n = 659 B (SE)
Perfectionism				
Non-perfectionists	1.33 (0.41)**	1.40 (0.63)*	0.99 (0.64)	1.43 (0.67)*
Maladaptive perfectionists	1.11 (0.42)**	1.22 (0.64)	0.89 (0.65)	1.22 (0.68)
High strain condition		0.16 (0.81)	0.30 (0.82)	0.51 (0.85)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		-0.13 (0.84)	-0.16 (0.85)	-0.40 (0.88)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		-0.21 (0.86)	-0.32 (0.87)	-0.49 (0.90)
Self-control			-0.05 (0.01)***	-0.05 (0.01)***
GPA				
2.5 - 2.99				1.07 (0.47)*
3.0 – 3.49				0.63 (0.40)
3.5 – 3.99				0.16 (0.40)
4.0 +				0.78 (0.48)
N/A				0.24 (0.40)
Ever paid for a paper before				-0.05 (0.60)
Have a prescription for Adderall				-0.75 (0.43)
Gender				
Female				-0.44 (0.21)*
Other				0.07 (0.74)
Race				
Asian				0.27 (0.36)
Black				0.85 (0.43)
Hispanic				0.36 (0.28)
White				-0.09 (0.28)
Other				-1.20 (0.49)*
Intercept 1	2.08 (0.40)***	2.17 (0.61)***	0.00 (0.75)	-0.93 (1.20)
Intercept 2	2.90 (0.41)***	2.99 (0.61)***	0.86 (0.75)	-0.03 (1.20)
Intercept 3	3.98 (0.43)***	4.06 (0.63)***	1.91 (0.76)*	1.04 (1.20)
Intercept 4	4.75 (0.46)***	4.84 (0.65)***	2.64 (0.78)***	1.79 (1.21)

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 13: Ordered logit of context dependency of the wrongness of paying for the paper

	n = 366 B (SE)	n = 366 B (SE)	n = 349 B (SE)	n = 349 B (SE)
Perfectionism				
Non-perfectionists	1.48 (0.55)**	1.36 (0.79)	1.04 (0.80)	1.11 (0.83)
Maladaptive perfectionists	1.24 (0.56)*	1.02 (0.81)	0.88 (0.82)	0.96(0.85)
High strain condition		-0.52 (1.06)	-0.21 (1.08)	-0.19 (1.12)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		0.21 (1.10)	0.16 (1.12)	0.26 (1.16)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		0.38 (1.13)	0.07 (1.15)	0.10 (1.19)
Self-control			-0.05 (0.01)***	-0.05 (0.01)***
GPA				
2.5 - 2.99				1.78 (0.69)**
1.0 – *3.49*				1.36 (0.61)*
3.5 – 3.99				0.70 (0.61)
4.0 +				1.37 (0.72)
N/A				1.26 (0.61)*
Ever paid for a paper before				0.08 (0.68)
Gender				
Female				-0.38 (0.30)
Other				-0.89 (1.18)
Race				
Asian				0.72 (0.47)
Black				-0.10 (0.64)
Hispanic				0.71 (0.42)
White				0.36 (0.41)
Other				-1.24 (0.69)
Intercept 1	2.06 (0.53)***	1.76 (0.76)*	-0.32 (0.96)	0.77 (1.24)
Intercept 2	2.93 (0.54)***	2.64 (0.77)***	0.63 (0.96)	1.79 (1.24)
Intercept 3	4.21 (0.57)***	3.93 (0.79)***	1.97 (0.97)*	3.19 (1.26)*
Intercept 4	4.99 (0.62)***	4.70 (0.83)***	2.63 (1.00)**	3.87 (1.28)*

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

Table 14: Ordered logit of context dependency of the wrongness of taking the Adderall

	n = 330 B (SE)	n = 330 B (SE)	n = 314 B (SE)	n = 311 B (SE)
Perfectionism				
Non-perfectionists	1.16 (0.63)	1.60 (1.05)	1.09 (1.07)	2.51 (1.24)*
Maladaptive perfectionists	0.96 (0.65)	1.53 (1.07)	1.01 (1.09)	2.27 (1.27)
High strain condition		1.04 (1.29)	0.99 (1.30)	2.50 (1.46)
Interactions				
Non-perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Non-perfectionists x high strain		-0.73 (1.33)	-0.77 (1.34)	-2.13 (1.49)
Adaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Adaptive perfectionists x high strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x low strain		0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Maladaptive perfectionists x high strain		-1.05 (1.36)	-0.93 (1.38)	-2.32 (1.55)
Self-control			-0.04 (0.01)**	-0.04 (0.02)**
GPA				
2.5 - 2.99				0.76 (0.67)
3.0 – 3.49				-0.11 (0.57)
3.5 – 3.99				-0.31 (0.55)
4.0 +				0.48 (0.70)
N/A				-0.85 (0.58)
Has a prescription for Adderall				-1.37 (0.54)*
Gender				
Female				-0.65 (0.32)*
Other				1.25 (1.09)
Race				
Asian				-0.27 (0.62)
Black				2.36 (0.63)***
Hispanic				0.13 (0.40)
White				-0.55 (0.40)
Other				-1.01 (0.71)
Intercept 1	2.11 (0.61)***	2.67 (1.03)**	0.50 (1.25)	-1.70 (1.78)
Intercept 2	2.87 (0.62)***	3.44 (1.04)***	1.25 (1.25)	-0.87 (1.78)
Intercept 3	3.72 (0.64)***	4.29 (1.05)***	2.00 (1.26)	-0.00 (1.78)
Intercept 4	4.50 (0.68)***	5.06 (1.08)***	2.78 (1.28)*	0.90 (1.79)
Observations	330	330	314	311

*** p<0.001, ** p<0.01, * p<0.05

B corresponds to the difference in log odds of being in a higher category of the dependent variable with a one unit increase in the independent or control variable

APPENDIX E

IRB APPROVAL

ASU Knowledge Enterprise Development

EXEMPTION GRANTED

Jesenia Pizarro-Terrill
WATTS: Criminology and Criminal Justice, School of
602/496-2339
Jesenia.Pizarro@asu.edu

Dear Jesenia Pizarro-Terrill:

On 11/22/2019 the ASU IRB reviewed the following protocol:

Type of Review:	Modification / Update
Title:	Delinquent perfectionists: A study of the interaction between strain and perfectionism on deviant behavior among college students
Investigator:	Jesenia Pizarro-Terrill
IRB ID:	STUDY00010204
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	• Delinquent Perfectionism IRB protocol, Category: IRB Protocol;

The IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 on 11/22/2019.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Savanna Allen
Savanna Allen