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UNDERSTANDING THE RELATIONSHIP BETWEEN PERFECTIONISM AND
HEALTH: MEDIATIONAL EFFECTS DRUG USE

BY

SARAH NELSEN

A master's thesis submitted in partial fulfillment of the requirements for the

Master of Science

Major in Industrial and Organizational Psychology

South Dakota State University

2019

UNDERSTANDING THE RELATIONSHIP BETWEEN PERFECTIONISM AND
HEALTH: MEDIATIONAL EFFECTS DRUG USE

SARAH NELSEN

This thesis is approved as a creditable and independent investigation by a candidate for the Master of Science in Industrial and Organizational Psychology degree and is acceptable for meeting the thesis requirements for this degree. Acceptance of this does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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ABRREVIATIONS

AP	Adaptive Perfectionist
COR	Conservation of Resources Theory
MP	Maladaptive Perfectionist
NP	Non-Perfectionist

ABSTRACT

UNDERSTANDING THE RELATIONSHIP BETWEEN PERFECTIONISM AND
HEALTH: MEDIATIONAL EFFECTS DRUG USE

SARAH NELSEN

2019

Past research has provided evidence on the consequences of perfectionism. One particular consequence of perfectionism is that of general health. Research has suggested that perfectionism type influences general mental health. Using the 3-cluster perspective of perfectionism by Slaney, Rice, Mobley, Trippi, & Ashby (2001), the current work investigates the mediating effects of drug use on the relationship between perfectionism clusters and general mental health, in the context of Conservation of Resources Theory (COR; Hobfoll, 1989). Adaptive perfectionists had higher general mental health compared to non-perfectionists and maladaptive perfectionists. However, the three clusters of perfectionism did not differ in drug use (i.e. smoking and drinking). In addition, drug use did not mediate the relationship between perfectionism and general mental health. Implications of perfectionism and general mental health, in relation to Conservation of Resources Theory, and future research opportunities are discussed.

INTRODUCTION

In 2013, nine out of ten Americans considered themselves to be in ‘good health’ (Atlantic National Poll, 2013). However, public health research suggests otherwise, indicating that more than one-third of Americans are obese and that more than half of all Americans are diagnosed with a mental illness (e.g., depression) within their lifetime (Parks, Svendsen, Singer, & Foti, 2006). This evidence suggests that Americans’ general (i.e., mental and physical) health may be in jeopardy. Despite Americans’ positive perceptions of their health, over 300 million people are living with depression (World Health Organization, 2017). Depression, anxiety disorders, and common mental disorders (e.g., social anxiety disorder, obsessive compulsive disorder, and posttraumatic stress disorder) are the largest contributors to global disability and suicide, and can place a burden on individuals, families, and the healthcare system (National Collaborating Centre for Mental Health, 2011).

With a vast majority of Americans experiencing health-related issues, it is pertinent to understand how general health may be impacted by various components of one’s lifestyle. Research also indicates that individuals tend to engage in activities that detrimentally impact their overall health (e.g. drinking, smoking). This is particularly troublesome as it has been found that some of the leading causes of preventable death in the United States are the use of alcohol and tobacco (Mokdad, Marks, Stroup, Gerberding, 2004). In fact, alcohol consumption is attributed to increased risks of developing mental disorders (e.g., major depressive disorders) and diseases (e.g., cirrhosis, cancer, and cardiovascular diseases). Alcohol consumption is even considered to be a precursor to death, causing three million deaths per year (Global Status Report on

Alcohol and Health, 2018). Whereas tobacco use is often associated with various cancers of the mouth, throat, and lungs, lung disease, and cardiovascular issues (Harwood, 2000). Typically, these substances are used together; those who smoke are more likely to drink, and those that drink are more likely to smoke (Bobo & Husten, 2000; Grant, Hasin, Chou, Stinson, & Dawson, 2004). As such, it appears that increased smoking and drinking results in harmful effects to one's own health and can exacerbate the negative effects of the other.

Although individuals may be aware of how drug use (i.e., smoking and drinking) negatively impact their health, there may be some underlying psychological reasons as to why individuals continue to abuse these substances. For example, many individuals use drugs to cope with stressful life events (Rice & Van Arsdal, 2010). Slaney, Rice, and Ashby (2002) suggest that individuals experience negative consequences (i.e. stress, negative affect, distress) when they perceive that they are consistently failing to meet the standards they have set for themselves (this construct is known as perfectionism). Research suggests that individuals may turn to various negative coping habits to cope with this discrepancy (Park, Armeli, & Tennen, 2004). For example, individuals tend to smoke to help regulate their emotions and to reduce feelings of distress and anxiety (Wills & Shiffman, 1985). Additionally, following the tension-reduction hypothesis, individuals may also drink to cope with stress (e.g., Park et al., 2004). Complementing this, Rice and Van Arsdale (2010) found a positive association between stress and drinking to cope as well as between drinking to cope and alcohol problems. Therefore, it seems that discrepancies in one's ability to meet expectations perpetuate disruptive, dysfunctional coping habits, resulting in consequences to one's health.

Furthermore, there has been a push in health research to better understand factors contributing to the occurrence of disorders and diseases (e.g., obesity, cancer). As such, an increase in evidence has been found that individuals' inability to meet the excessive standards of flawlessness and completeness (Frost, Marten, Lahart, & Rosenblate, 1990) that they and others may hold for themselves may yield significant consequences to one's health (e.g., Bardone-Cone, Weishuln, & Boyd, 2009; Chang, Hudson Banks, & Watkins, 2004; Rice, Richardson, & Clark, 2012). Such research has further guided researchers to investigate the prevalence of perfectionism and the various consequences of perfectionism (Curran & Hill, 2017), but it appears that research has failed to address how negative coping habits (i.e., drinking and smoking) may contribute to this effect.

By examining these relationships, research will provide healthcare professionals, colleges, and organizations alike with important information on how to address drug use and health concerns. If healthcare professionals are better aware of how perfectionism type may influence drug use, and how this impacts general mental health, they may begin to create better regimes to introduce individuals to more productive coping strategies. Additionally, if colleges are more aware of the reasons why students drink, and the differences between perfectionism types, they may be able provide better student engagement initiatives for students to help them cope with the stresses of school, work, and life, which may deter them from participating in unhealthy drinking and smoking behaviors, and in turn should benefit their health. Furthermore, when organizations are mindful of how perfectionism type, drug use, and general mental health are related, they will be able to provide employees with the proper resources and knowledge of how to address drug use and health concerns.

As such, the current study aims to better understand the role that perfectionism plays in the use of dysfunctional coping habits of drug use. For the sake of this research, drug use will be understood to mean smoking and drinking. Through the lens of Conservation of Resources Theory (Hobfoll, 1989), we examine the relationship between perfectionism dimensions and general mental health in a time-lag design. Additionally, we consider negative coping strategies of drug use as mediators of the relationship between perfectionism and general mental health.

Perfectionism

Cultural values in the United States have shifted dramatically within recent decades to that of a more neoliberalist style, influencing individuals to embrace a competitive individualistic lifestyle, while insisting on impractical ideals of creating and maintaining a ‘perfect’ self (Verhaeghe, 2014). This changing cultural style results in creating a state within individuals where they are not only more dissatisfied with what they have but are becoming more dissatisfied with who they are (Eckersley, 2006). This drive to create a ‘perfect’ self can be varied by the dimension of perfection that one wants to obtain. As such, it is important to address the dimensionality of perfectionism, such that perfectionism can be conceptualized into three categories: adaptive, maladaptive, and non-perfectionists (Slaney, Rice, Mobley, Trippi, & Ashby, 2001).

Adaptive perfectionism or perfectionistic strivings consists of self-oriented perfectionism and personal standards (Harari, Swider, Bujold Steed, & Breidenthal, 2018; Hewitt & Flett, 1991; Smith, Saklofske, Yan, & Sherry, 2017). The former suggests that an individual demands perfection of oneself while the latter suggests that individuals set extremely high personal goals for themselves. In general, adaptive perfectionism

describes the tendencies of an individual to set and achieve excessively high standards that they have created for themselves (Harari et al., 2018). Individuals with adaptive perfectionism strive to complete their tasks in a flawless manner and perceive their actions of doing so as an expectation (Dunkley, Blankstein, & Berg, 2012). Research indicates that perfectionistic strivings/adaptive perfectionism are typically associated with positive functioning such as high self-esteem, satisfaction with life (Stoeber & Otto, 2006) and correspond to which Hamachek (1978) refers to as ‘normal perfectionists’.

Alternatively, maladaptive perfectionism describes the tendencies of an individual to have concerns over their mistakes, doubt their actions, and to avoid failure as they perceive that perfection is expected of them by others (Hewitt & Flett, 1991). Research suggests maladaptive perfectionism or perfectionistic concerns (e.g. socially prescribed perfectionism, concern over mistakes, and doubts about actions) result in negative self-criticism, stress, depression, anxiety, and problematic coping (e.g. Aldea & Rice, 2006 Hewitt & Flett, 1990; Smith et al., 2017). Despite the differentiation between the adaptive and maladaptive perfectionism, both of these dimensions suggest that an individual will attempt to achieve unrealistic flawlessness either based on their own personal intrinsic beliefs or the extrinsic beliefs of others (Harari et al., 2018). However, unlike adaptive and maladaptive perfectionists, non-perfectionists are those that have low levels of perfectionistic strivings and non-specific levels of perfectionistic concerns, and thus, do not have this drive to meet such expectations (Stoeber, Davis, & Townley, 2013). In contrast to adaptive perfectionists, non-perfectionists have lower levels of pride and higher levels of shame and guilt; additionally, non-perfectionists feel lower levels of pride than maladaptive perfectionists (Stoeber, Harris, & Moon, 2007).

Using the differentiation between adaptive, maladaptive, and non-perfectionists, has allowed research to identify the ways in which each perfectionism dimension is influenced by different outcomes. Specifically, this categorization of perfectionism has allowed researchers to compare adaptive and maladaptive perfectionists in relation to the positive and negative consequences they experience (e.g., Bardone-Cone, Weishuln, & Boyd, 2009; Chang, Hudson Banks, & Watkins, 2004; Rice, Richardson, & Clark, 2012). Consequences of perfectionism are often related to work habits, emotion, and health. For example, adaptive perfectionism has been linked to higher motivation at work, more willingness to outperform others to achieve their own personal goals (Stoeber et al., 2013), as well as lower levels of strain and higher levels of engagement in comparison to maladaptive perfectionism (Ozbilir, Day, & Catano, 2014). Furthermore, adaptive perfectionists are more complete in their own work, performance, and standards in comparison to maladaptive perfectionists (Flett & Hewitt, 2002). However, despite perfectionism dimensions, both types of perfectionists (adaptive and maladaptive) may succumb to overworking in attempt to perfect their work, but by doing so, may negatively impact their own well-being (Gnilka, McLaulin, Ashby, & Allen, 2017). However, in contradiction to perfectionists, non-perfectionists are less likely to invest their efforts in setting and achieving goals for themselves (Arana & Furlan, 2016) which negatively impacts an individuals' level of self-efficacy (Mann, de Ridder, & Fujita, 2013), which, in turn, may also negatively affect individuals' health (Schwarzer & Renner, 2000).

Consistencies in perfectionism research address how the dimensions of perfectionism relate to psychological functioning such that maladaptive perfectionism is often associated with negative psychological functioning (i.e., stress, depression) and that

adaptive perfectionism is often associated with positive psychological functioning (i.e., life satisfaction).

Conservation of Resources Theory and Health

Conservation of Resources (COR; Hobfoll, 1989) theory suggests that individuals have an inner drive to create, sustain, and protect resources that they view as valuable. COR theory proposes that stress occurs in times when valued resources are threatened, lost, or unable to be attained. These valued resources can be related to personal (e.g., personal skills and traits), condition (e.g., tenure and seniority), object (e.g., car, work materials) and energy (e.g., money, knowledge) needs. As such, COR theory can be expressed through the use of four principles. The first principle states that resource loss is more salient, noticeable, and impactful than resource gain. The second principle states that to protect oneself from resource loss, to recover from losses, and to gain resources, an individual must first invest their resources. Thirdly, resource gain increases in importance in the context of resource loss, such that when resource loss circumstances are high, resource gains become more valuable. The last principle states that when an individual's resources become exhausted, that individual will experience psychological strain, which may impact an individual's general health (Hobfoll & Shirom, 2001).

Health, as defined by The World Health Organization (1948) is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". Through this definition, well-being acts as a precursor of health, suggesting that higher well-being leads to better health. In other words, individuals high in well-being report fewer unpleasant physical symptoms, have stronger immune systems and better cardiovascular health, and engage in healthier lifestyle behaviors which may deter

individuals from engaging in life-style diseases such as addictions to drug use (Roysamb, Tambs, Reichborn-Kjennerud, Neake, & Harris, 2003).

Subsequently, as suggested in COR theory, there are a variety of health concerns that arise when we feel that resources are threatened, lost, unattainable, or when there exists an imbalance between resources currently held and the resources needed. For example, our health becomes susceptible to such consequences as depression, feelings of hopelessness and loneliness, stress, attachment, anxiety, anger, decreased well-being, decreased affect, decreased life satisfaction, and suicide ideation (Gaudreau & Gerner-Filion, 2012; Gnilka, Ashby, & Noble, 2013; Rice, Ray, Davis, DeBlaere, & Ashby, 2015; Smith et al., 2017). Therefore, using COR theory, perfectionists may strive to excel and seek high personal standards considerably more to maintain resources than non-perfectionists (Hobfoll & Shirom, 2001). The psychological strain that occurs from doing so may impact perfectionists' general mental health. Further, when valuable resources become depleted over time, perfectionists may be impacted by this loss and faced with greater deficiencies in health in comparison to non-perfectionists.

Utilizing the dimensionality of perfectionism, researchers have found that maladaptive perfectionists are more likely to experience the strain of imbalanced resources, causing negative consequences to one's psychological and physical health such as increases in stress, depression, anxiety, and decreases in life satisfaction (Chang, Banks, & Watkins, 2004; Gnilka, Ashby, and Noble, 2013; Smith et al., 2017). In contrast, adaptive perfectionists often have greater resilience to the negative consequences of their perfectionism and thus are able to use their perfectionistic tendencies to yield positive outcomes such as increases in general health and life

satisfaction and decreases in stress, depression, and anxiety (Gaudreau & Gerner-Filion, 2012; Rice, Ray, Davis, DeBlaere, & Ashby, 2015). Thus, adaptive perfectionists' practice of setting high personal goals for themselves, achieving high standards, and maintaining resources, may have greater benefits to one's general health (Molnar, Reker, Culp, Sadava, & Decourville, 2006) compared to maladaptive perfectionists, whose health may be jeopardized by feeling displeased with their inability to live up to their high standards and their inability to retain resources (Harari et al., 2018; Curran & Hill, 2017). These assertions support COR theory in that accomplishment and achievement are seen as personal resources that aid an individual, ultimately reducing stress, and increasing one's health (Hobfoll, 1989).

H1: Adaptive perfectionists will have higher levels of general health than maladaptive perfectionists and non-perfectionists. As such, maladaptive perfectionism will be related to decreases in general health while adaptive perfectionism will be related to increases in general health, and non-perfectionists will remain consistent in their general health.

Coping Strategies

The transactional theory of stress and coping (Lazarus & Folkman, 1984) suggests that the outcome of stress depends on how an individual appraises a situation and subsequently copes with that appraisal. Within this theory, coping is defined as any behavior or thought that individuals use to manage stress. Several coping strategies can be used to manage various stressors, such as problem-focused coping and emotion-focused coping. Problem-focused coping involves identifying the problem and seeking ways to eliminate the strain of the situation, whereas emotion-focused coping aims to eliminate the emotional distress of the stressful situation (Thayer & Lane, 2000). Apart

from problem-focused or emotion-focused coping, further strategies can be used. These strategies include adaptive and maladaptive coping strategies. Adaptive strategies involve seeking to combat stress in a positive manner in an attempt to improve functioning. These strategies are directly geared towards seeking and implementing solutions to resolve the effects of the stressor (Parasuraman & Hansen, 1987). Examples of adaptive coping strategies include self-help (e.g., getting emotional support from family and friends), approaching stress using problem-solving strategies, and accommodating stress by accepting and reframing negative outcomes (Brougham, Zail, Mendoza, & Miller, 2009). Alternatively, maladaptive coping strategies involve purposeful avoidance and dissociation from the stressor (Kirby, Shakespeare-Finch, Palk, 2011). Research on perfectionism and coping resources indicate that adaptive perfectionism is negatively associated with avoidant coping and dysfunctional coping (O'Connor & O'Connor, 2003) and positively associated with problem-focused coping (Rice & Lapsley, 2001). Meanwhile, maladaptive perfectionism is negatively related to problem-focused coping, and positively related to dysfunctional, emotion-based, and avoidant coping (Dunkley, Sanislow, Grilo, & McGlashan, 2006; Rice & Lapsley, 2001).

To better understand the dysfunctional coping habit of substance use, it is necessary to discuss the stress-coping model of substance use. This model views how substances, such as alcohol, tobacco, and opiates, may be used as a coping mechanism, such that an individual may use substances to reduce stress, negative emotions, or to enhance positive affect (Wills & Shiffman, 1985). The model indicates that individuals will use substances to cope instead of using more adaptive coping strategies due to a lack of effective coping skills such as the ability to make decisions and problem solve.

However, using substances to cope results in negative consequences such as increased unresolved stress, which then contribute to increases of stress and decreases in health (Wills, 1986). Vollrath (1998) found that heavy smokers had more stress, lacked crucial coping skills related to problem-focused strategies, and had more dysfunctional means of coping such as denial and use of alcohol or drugs. Based on previous literature regarding the types of coping styles that adaptive and maladaptive perfectionists use, it is predicted that because adaptive perfectionists experience a sense of achievement with reaching their high standards, that they may use more adaptive coping strategies to increase their personal resources; whereas, maladaptive perfectionists may use more maladaptive and dysfunctional coping strategies such as substance use to avoid self-reflection on their stressors.

Literature suggests that perfectionism type (primarily maladaptive perfectionism) relates to various dysfunctional coping habits (i.e., eating disorders such as Anorexia and Bulimia Nervosa). These disorders occur when individuals strive for a “perfect” weight which is to say that individuals strive to accomplish an unrealistic physical perception that is related to the concept of perfectionism (Goldner, Cockell, & Srikameswara, 2002). In an investigation on whether differences exist between the dimensions of maladaptive and adaptive perfectionism in their relationship to bulimic symptoms, it was indicated that maladaptive perfectionism was uniquely related to bulimic symptoms, such that higher levels of maladaptive perfectionism resulted in the highest levels of bulimic symptoms (Bardone-Cone, Weishuhn, & Boyd, 2009). In relation to perfectionism types and their influences on eating habits and disorders, the literature further suggests that there may be a relationship between perfectionism tendencies and alcohol use/drinking

behaviors. In an investigation of the association between perfectionism, perceived stress, drinking as a coping mechanism, and alcohol related problems amongst a student population, positive relationships were found between perceived stress, drinking to cope motives, and alcohol-related problems (Rice & Van Arsdale, 2010). As such, maladaptive perfectionists were more likely to use drinking to cope motives and had higher levels of stress than adaptive perfectionists. This supports the notion that maladaptive perfectionists use more negative forms of coping (such as drinking) than adaptive perfectionists or non-perfectionists (Dunkley, Sanislow, Grilo, & McGlashan, 2006; Rice & Lapsley, 2001).

Although there has been research suggesting a link between perfectionism and alcohol and drug abuse, (Flett, Hewitt, Wehlan, & Martin, 2007; Hewitt & Flett, 1991; McCown & Carlson, 2004), there remain inconsistencies in the literature. For example, some research suggests that there are no differences in alcohol use between adaptive and maladaptive perfectionist groups (Flett, Goldstein, Wall, Hewitt, Wekerle, & Azzi, 2008) while other research suggests the opposite (Rice & Van Arsdale, 2010). Moreover, there is an absence of research dedicated to better understanding of how substance use contributes to the relationship between perfectionism and general health and how this relationship may change over time.

Previous research does not address how time-lag effects may contribute to this relationship and instead have primarily focused on cross-sectional designs which reduces the evidence for cause-and-effect relationships between the variables (Bardone-Cone, 2009; Harari et al., 2018; Gnilka et al., 2017; Rice et al., 2015; Rice & Van Arsdale, 2010).

H2: Adaptive perfectionists will have lower levels of drug use (i.e., smoking and drinking) than maladaptive perfectionists and non-perfectionists. As such, maladaptive perfectionism will be related to increases in drug use while adaptive perfectionism will be related to decreases in drug use. Non-perfectionists will be related to stable drug use.

The mediating role of coping strategies on the relationship between perfectionism and general health may also be explained by COR theory. Particularly, impacts on general health may occur when individuals experience psychological strain/stress that interferes with their attainment or retainment of resources. COR theory premises that loss or gain in resources results in a loss or gain spiral (Hobfoll, Halbesleben, Neveu, & Westman, 2018). In other words, when resources are lost, stress occurs, leaving an individual with fewer resources to cope with their resource loss, which results in inducing the loss spiral. The opposite occurs when resources are more easily attainable and maintained, thus, leaving an individual with the proper resources needed, reducing the chance of stress that would have occurred if resources were at risk for loss. In this sense, maladaptive perfectionists may be more prone to a loss spiral and consequently use maladaptive coping strategies to deal with their loss, such as avoiding their stressor. Although avoiding a stressor may provide short-term relief, this strategy may feed into a larger loss spiral; ultimately increasing the psychological strain they experience, the dysfunctional coping strategies they use, and reducing their general health. Conversely, spiral gains may occur when adaptive perfectionists attain more resources by using adaptive coping strategies (Hobfoll et al., 2018). In an attempt to gain and maintain resources, adaptive perfectionists may experience slow, but salient resource gains (e.g.,

spiral gains) which may increase their motivation to continue to use adaptive coping strategies.

H3: Substance use mediates the relationship between maladaptive perfectionism compared with adaptive perfectionism and non-perfectionism for general health.

Method

Participants and Procedure

Participants were recruited through SONA, a human subjects pool system, at a public, Midwestern university. Participants were offered course credit that fulfilled the research requirement for introductory level courses (i.e., Psychology, Sociology, and Communications). Surveys were administered through Qualtrics, an online survey generating site. Individuals had to be at least 18 years old to participate. The sequence of measures was the same for all individuals: participants completed the first survey at Time 1, which measured demographics and the variables of interest including: perfectionism (independent variable), general health (dependent variable), and drug use (mediator variable). Then, in Time 2, approximately one month later ($M = 30.88$, $SD = 6.46$), participants completed the second survey which measured general mental health.

In the fall semester of 2018, 500 individuals completed the Time 1 survey. Participants were given 2 attention check items (e.g. “What color is the sky?”) to assure the quality of data collected. As such, ten individuals were removed from analyses ($n = 490$). Individuals were required to give identification numbers to match participant responses at Time 1 and Time 2. For identification numbers that were duplicates, if individuals did not have matching demographic information, they were treated as

separate individuals. As such, 15 individuals were removed from analyses for duplicate responses ($n = 475$; retention rate 95%). A total of 353 individuals (70.6%) had the opportunity to complete the second survey, as time allowed. For Time 2, approximately one month later ($M = 30.88$, $SD = 6.46$), a total of 225 (retention rate: 63.74%) completed the survey. Participants were given 2 attention checks. Failure to correctly answer the attention checks resulted in one participant being removed from analysis. As such, the final sample for Time 1 was 475 individuals and the final sample for Time 2 was 224 individuals.

For Time 1, 75.2% were female and the average age was 18.96 years old ($SD = 1.74$). Of those reporting race/ethnicity (99.58%) approximately 85.1% identified as White, 3.2 % as Hispanic/Latino, 3.4% as Black/African American, 4.6% as Asian, 1.7% as Native American or Alaskan, and the remaining 1.7% chose not to respond. These percentages are similar to the composition of the student body of this university. Of these participants 44.8% were currently employed. For Time 2, 80.8% were female and the average age was 18.97 years old ($SD = 1.99$). The racial breakdown included 88.8% identified as White, 3.1 % as Hispanic/Latino, 1.3% as Black/African American, 4.5% as Asian, 0.9% as Native American or Alaskan, and the remaining 1.3% chose not to respond. Of these participants, 41.5% were currently employed. These demographics are similar to that of Time 1.

Measures

Perfectionism. Perfectionism was measured using the Almost Perfect Scale-Revised scale (APS-R; Slaney, Rice, Mobley, Trippi, & Ashby, 2001) which consists of 23 Likert-type items, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The scale

consists of three facets of perfectionism: discrepancy (12 items; $\alpha = .94$), high standards (7 items, $\alpha = .88$), and order (4 items, $\alpha = .86$). These items were modified specifically to be related school, as such items that involved terminology related to work, were modified to include the work school. Example items include: “I often feel frustrated because I can’t meet my goals,” “I have high standards for my performance at work or school,” and, “I am an orderly person,” for each scale, respectively.

General Health Questionnaire. Psychological health of participants was measured using the General Health Questionnaire (GHQ-12; Goldberg, 1972) which consists of 12 Likert-type items (Time 1: $\alpha = .88$; Time 2: $\alpha = .89$), ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Half of the items are reverse worded and therefore were reverse coded. Typically, any score exceeding the threshold value of 3 is classified as achieving ‘psychiatric caseness’, suggesting that in general practice, individuals would be likely to receive further attention, however for the purpose of this study we are treating this as a continuous variable (Goldberg, 1972). Example items include: (normal item): “I have been able to concentrate on whatever I’m doing,” (reverse worded item): “I have lost much sleep over worry.”

Alcohol Use. Alcohol use was measured using the Alcohol Use AUDIT-C scale (Bush, Kiylahan, McDonell, Fiihn, & Bradley, 1998). The questionnaire consists of three questions pertaining to one’s alcohol consumption within the past year (Time 1: $\alpha = .74$; Time 2: $\alpha = .74$). Questions are scored on a point-based system from 0 to 4 and summed for a total score. Scores ≥ 4 (men) and ≥ 3 (women) indicate positive screens for alcohol misuse (Reinert & Allen, 2007). However, for the purpose of this study, we treated

alcohol use as a continuous variable and used the average score. A sample item is: “How often do you have a drink containing alcohol?”

Smoking History. Smoking history was measured using the one-item self-report Smoking History Questionnaire (SHQ; Brown, Leuez, Kahler, & Strong, 2002). The item is: “Think about your smoking during the last week. How many times did you use cigarettes, cigars, smokeless tobacco, tobacco, or a vape in an average day?”

Cluster Formation

Before hypothesis testing, perfectionism clusters of adaptive perfectionists (AP), non-perfectionists (NP), and maladaptive perfectionists (MP) were identified using two-step cluster analysis as prior research (Deuling, Page, & Chung, 2019; Grzegorek, Slaney, Franze, & Rice, 2004) uses this approach. First, the standardized APS-R subscale scores are used in a hierarchical cluster analysis using Ward’s linkage method with the squared Euclidean distance measure. The initial centroids for the three-cluster solution are determined and then used in step two. Step two utilizes non-hierarchical, *k*-means cluster analysis, specifying a three-cluster solution and using the initial centroid means from the first step, as this adds to the precision of cluster analysis groups.

The resulting clusters were compared to determine each perfectionism cluster (Table 1). The cluster analysis placed 113 participants in the first cluster (23.8%), 223 participants in the second cluster (46.9%), and 126 participants in the third cluster (26.5%). The first cluster, which had below average scores on the high standards facet, represented non-perfectionists (NP; $n = 113$). The second and third clusters were therefore considered perfectionists (based on above average scores on the high standards facet). The third cluster had the highest discrepancy score identifying this cluster as the

maladaptive perfectionists (MP; $n = 126$). The second cluster was therefore labeled as adaptive perfectionists (AP; $n = 223$).

Table 1. Means, Standard Deviations, and ANOVA Results by Perfectionism Clusters

Perfectionism Clusters							
	NP (<i>n</i> = 113)		MP (<i>n</i> = 126)		AP (<i>n</i> = 223)		
Variable	Mean	SD	Mean	SD	Mean	SD	ANOVA
1. Personal Standards	-1.24 _a	.93	.03 _b	.60	.59 _c	.53	282.33***
2. Order	-1.13 _a	.88	-.10 _b	.64	.61 _c	.63	231.84***
3. Discrepancy	.02 _a	.81	.72 _b	.88	-.43 _c	.90	70.61***
4. General Health (T1)	3.16 _a	.61	3.15 _a	.69	3.72 _b	.61	46.25***
5. Smoking (T1)	1.62	5.03	1.07	4.07	.81	3.29	1.48
6. Alcohol (T1)	.89	.72	.95	.77	.78	.71	2.37 ⁺
7. General Health (T2)	3.26 _a	.56	2.99 _a	.60	3.57 _b	.68	16.50***
8. Smoking (T2)	.58	2.09	.90	2.50	.56	1.82	.50
9. Alcohol (T2)	.75	.69	1.03 _a	.79	.71 _b	.65	4.05*

Note. For numbers 1-3, values are standardized z-scores. NP is non-perfectionists; MP is maladaptive perfectionists; AP is adaptive perfectionists, and T is time. ⁺ is significant at $p = .10$, * is significant at $p = .05$, ** is significant at $p = .01$, and *** is significant at $p = .001$. Different letters indicate significantly different means by perfectionism cluster using Tukey post-hoc analysis. For Time 1, $n = 435$ -460. For Time 2, $n = 207$ -218.

Results

Prior to analysis, the relationship between the variables of interest (perfectionism, general mental health, smoking, and drinking) and the duration between completing Time 1 and Time 2 was assessed. As the highest correlation was minimal ($r = -.09$, $p = .18$), this was not controlled for. Descriptive information, zero-order correlations, and Cronbach's alpha reliability scores are presented in Table 2.

Table 2. Descriptive statistics and correlations.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. High	5.87	.87	(.94)								
2. Discrepancy	5.31	1.09	.50**	(.88)							
3. Order	3.95	1.26	.02	-.03	(.86)						
4. GHQ (T1)	3.43	.69	.24**	.18**	-	(.88)					
5. Smoking	1.07	3.96	-.09	-.09	.01	-.11*	(--)				
6. Alcohol (T1)	.85	.73	-.02	-.08	.01	-.03	.23**	(.74)			
7. GHQ (T2)	3.35	.68	.14*	.15*	-	.72**	-.08	-.09	(.89)		
8. Smoking	.63	2.04	.05	-.04	.08	-.10	.79**	.20**	-.07	(--)	
9. Alcohol (T2)	.80	.71	-.03	-.01	.03	-.05	.16*	.84**	-.06	.00	(.74)

Note. GHQ is General Health Questionnaire and T is time. At Time 1, $n = 436-473$. At Time 2, $n = 206-223$. * significant at $p = .05$, ** significant at $p = .001$. In bolded parentheses is the alpha score.

To examine the effects of perfectionism on general mental health (hypothesis 1), both one-way ANOVA and repeated measures ANOVA was used. Significant differences between perfectionism clusters were found for general mental health. At Time 1 ($F(2, 451) = 46.25, p < .001$), Tukey's post-hoc test revealed that AP had significantly higher general mental health ($M = 3.72$) than MP ($M = 3.15, p < .001$) and NP ($M = 3.16, p < .001$). Additionally, there were significant differences for general mental health at Time 2 ($F(2, 213) = 16.50, p < .001$). Tukey's post-hoc test revealed that AP ($M = 3.57$) had significantly higher general mental health than MP ($M = 2.99, p < .001$) and NP ($M = 3.26, p < .05$) while MP and NP were marginally different ($p = .08$). Repeated measures ANOVA revealed that there was a significant change in general mental health over time ($F(1, 210) = 7.22, p < .01$); however, there was not a significant interaction when looking at change in general mental health by cluster ($F(2, 210) = 1.75, p > .05$). As such hypothesis 1 was partially supported. Specifically, adaptive perfectionists had higher

levels of general mental health than the other clusters, but the longitudinal aspect of hypothesis 1 which suggested that AP would have increases in their general mental health and MP would have decreases in their general mental health over time was not supported.

As scores exceeding a threshold value of 3 on the GHQ are classified as achieving ‘psychiatric caseness’, further analyses were conducted. As such, individuals were classified into two groups: individuals that had an average score of three or below and those who had an average score of 3.01 or above. Chi-square analyses detected significant differences between clusters in terms of general mental health at Time 1 ($n = 454$, $\chi^2(2) = 40.60$, $p < .001$, Cramer’s $V = .30$) and at Time 2 respectively ($n = 216$, $\chi^2(2) = 20.40$, $p < .001$, Cramer’s $V = .31$). For a reference, a Cramer’s V score from .25 to .30 is considered to be moderately strong or desirable and a score from .30 to .35 is considered to be strong or very desirable. From Time 1 to Time 2, Chi-square analysis detected a marginal difference in clusters when comparing by threshold for general mental health ($n = 217$, $p = .059$). However, when looking at each cluster separately, there was no change over time. These results replicate aforementioned findings and support the cross-sectional nature of hypothesis 1.

In additional supplemental analysis, we tested for differences in general mental health for working and non-working individuals separately. For non-working individuals, one-way ANOVA revealed significant differences in clusters at Time 1 ($F(2, 250) = 25.31$, $p < .001$) and Time 2 ($F(2, 126) = 9.73$, $p < .001$). Specifically, for non-working individuals at time 1, AP ($M = 3.76$) had higher levels of general mental health than MP ($M = 3.19$, $p < .001$) and NP ($M = 3.20$, $p < .001$). For Time 2, AP ($M = 3.58$) had a significantly higher level of general mental health than MP ($M = 2.97$, $p < .001$) and NP

($M = 3.23$, $p < .05$). Repeated measures ANOVA revealed a significant effect of time ($F(1, 123) = 7.03$, $p < .01$) and a significant interaction between cluster and time ($F(2, 123) = 4.09$, $p < .05$). However, this is not in support of hypothesis 1 as AP decreased in general mental health while the general mental health of NP and MP remained relatively constant (See Figure 1). When classifying individuals as non-psychiatric caseness (an average score of 3 or below on the GHQ) and psychiatric caseness (an average score equal to 3.01 or on the GHQ), there was a significant difference amongst clusters at Time 1 ($n = 251$, $\chi^2(2) = 23.30$, $p < .001$, Cramer's $V = .31$) and Time 2 ($n = 129$, $\chi^2(2) = 15.55$, $p < .001$, Cramer's $V = .35$). There were no longitudinal effects when looking at changes between Time 1 and Time 2 for any cluster of non-working individuals. As such, these results partially support hypothesis 1, as it was anticipated that there would be differences between the clusters, however, it was predicted that over time, AP would have higher general mental health than the other clusters, and this was not the case.

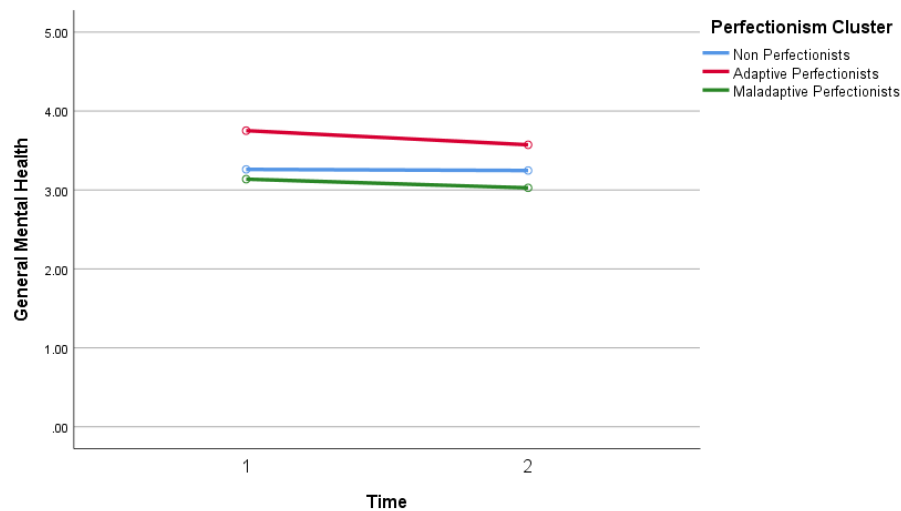


Figure 1. General Mental Health of Perfectionism Clusters from Time 1 to Time 2.

For working individuals, a one-way ANOVA revealed significant differences in clusters at Time 1 ($F(2, 200) = 21.09, p < .001$) and Time 2 ($F(2, 284) = 6.66, p < .005$). Specifically, for working individuals at Time 1, AP ($M = 3.68$) had higher levels of general mental health than MP ($M = 3.10, p < .001$) and NP ($M = 3.10, p < .001$). For Time 2, AP ($M = 3.56$) had a significantly higher general mental health than NP ($M = 3.01, p = .001$). Repeated measures ANOVA revealed no change in time and no interaction between time and perfectionism type. For working individuals, when classifying individuals as non-psychiatric caseness (3 or below on the GHQ) and psychiatric caseness (equal to 3.01 or greater on the GHQ), there were significant differences amongst clusters in relation to general mental health at Time 1, ($n = 203, \chi^2(2) = 18.10, p < .001$, Cramer's $V = .30$) and marginal differences at Time 2, ($n = 87, \chi^2(2) = 5.76, p = .056$, Cramer's $V = .26$). There were no longitudinal effects when looking at changes in general mental health between Time 1 and Time 2 for any cluster of working individuals. These results provide partial support for hypothesis one, such that working AP had higher levels of general mental health in comparison to the other clusters. However, because there were not any significant differences between Time 1 and Time 2 for clusters, this does not support hypothesis 1.

For hypothesis 2, one-way ANOVA and repeated measures ANOVA with Tukey's post-hoc tests were used to examine the effects of perfectionism on drug use. Results of the one-way ANOVA indicated that there was no significant difference in smoking behaviors between the clusters at Time 1 or Time 2. Additionally, repeated measures ANOVA revealed no significant difference in smoking between the clusters over time. In regards to alcohol use, one-way ANOVA revealed that, although there was

only a marginally significant difference between clusters at Time 1 ($F(2, 257) = 2.37, p = .094$), such that AP ($M = .71$) had lower levels of alcohol use than MP ($M = .96, p = .07$). Additionally, there was a significant difference at Time 2 ($F(2, 215) = 4.05, p < .05$), such that AP ($M = .71$) had significantly lower levels of alcohol use than MP ($M = 1.03, p < .05$). A repeated measures ANOVA revealed that there was not a significant main effect of time or interaction. These results provide mixed support for hypothesis 2.

Similar to the general mental health threshold, in further analyses, we classified both smoking and alcohol use into categories. For smoking, individuals were classified as either smokers or non-smokers. For alcohol use, as indicated by the AUDIT-C scale, men with scores of 4 or greater and women with scores of 3 or greater were classified as misusing alcohol. When looking at each cluster separately, there was not a significant difference in smoking or drinking for AP using these dichotomizations. However, for NP there was a significant change in alcohol use from T1 to T2 ($n = 47, p < .05$), suggesting an increase in alcohol use. Further, for MP there was a significant change in increase alcohol use from T1 to T2, ($n = 56, p < .05$). These results provide partial support for hypothesis 2. Although AP did not decrease in alcohol use over time, of which was predicted, both MP and NP increased in their alcohol use.

As before, supplemental analyses were conducted for non-working and working individuals, using the aforementioned dichotomies for smoking and alcohol. For the non-working individuals, one-way ANOVA indicated no significant differences for smoking between clusters at Time 1 or Time 2. Repeated measures ANOVA also revealed no significant differences in smoking between clusters over time. For alcohol use, there was a marginal difference at Time 1 ($F(2, 252) = 2.55, p = .08$), such that non-working AP

had lower levels of alcohol use ($M = .70$) than non-working MP ($M = .95, p = .073$). For Time 2, there was a significant difference for alcohol use between clusters ($F(2, 128) = 3.72, p < .05$), such that non-working AP ($M = .60$) had lower levels of alcohol use compared to nonworking MP ($M = 1.00, p < .05$). Repeated measures ANOVA revealed a significant main effect of time on non-working individuals' dichotomized alcohol use ($F(1, 127) = 9.52, p < .005$), such that from Time 1 to Time 2, all clusters experienced a decrease in their alcohol use, yet, no significant interaction by cluster was found (See Figure 2). Again, using the aforementioned dichotomy for alcohol use, for non-working individuals, there was a significant difference between clusters and their alcohol use at Time 1 ($n = 47, p < .05$), but at Time 2, there was no significant difference found between clusters and alcohol use. Chi square analysis revealed no significant differences between clusters and their alcohol use from Time 1 to Time 2. When looking at each cluster separately, for non-working NP, there was a marginal change in alcohol use from Time 1 to Time 2 ($n = 33, p = .07$) such that there was an increase in alcohol use overtime. Further, there was a significant difference in alcohol use for non-working MP ($n = 32, p < .05$) indicating increases in alcohol use from Time 1 to Time 2. For non-working AP, there were no significant changes in alcohol use from Time 1 to Time 2. As such, this provides mixed support for hypothesis 2 as it was found that AP had lower levels of alcohol use than MP and NP, however in terms of longitudinal analysis, AP remained stable in their alcohol use over time.

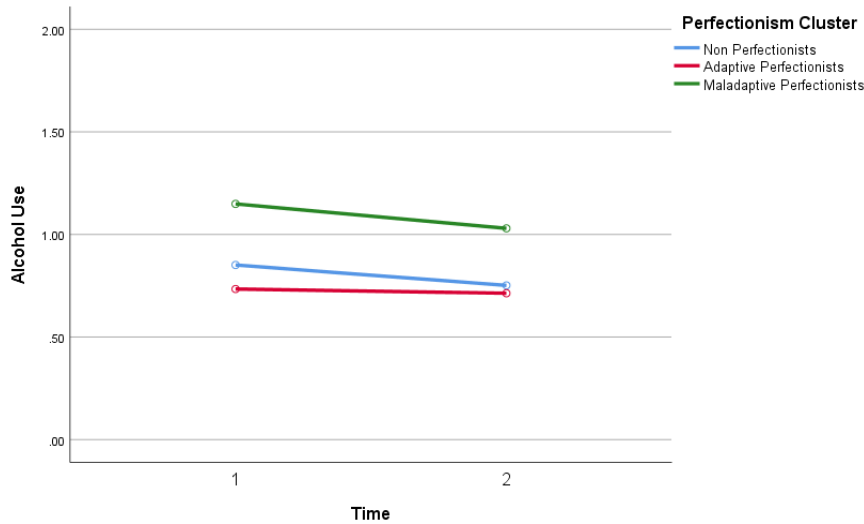


Figure 2. Alcohol Use of Perfectionism Clusters from Time 1 to Time 2.

For working individuals, one-way ANOVA indicated no significant differences between clusters for smoking or drinking at Time 1 or Time 2. Additionally, there was no difference from Time 1 to Time 2 as indicated by repeated measures ANOVA or Chi-square when using the dichotomizations.

To test hypothesis 3, each type of substance use (i.e., alcohol use and smoking) was tested separately as a mediator of the relationship between perfectionism cluster and general mental health with model 4 of the PROCESS macro (Hayes & Preacher, 2014). As such, orthogonal contrast codes were created for comparisons. Specifically, the first contrast was that of NP vs Perfectionists (i.e., MP and AP combined); the second contrast compared MP to AP while excluding NP. When comparing NP and perfectionists, smoking did not mediate the relationship with general mental health ($\beta = -.00$, 95CI [-.02, .01]). Additionally, when comparing AP to MP, smoking did not mediate the relationship with general mental health: ($\beta = -.00$, 95CI [-.03, .01]).

When comparing NP to perfectionists, substance use (alcohol use) did not mediate the relationship with general mental health. In the second contrast, comparing MP to AP,

alcohol use did not mediate the relationship with general mental health. These findings fail to support hypothesis 3.

Discussion

Few studies have examined perfectionism, drug use, and general mental health in relation to each other. The current work contributes to the perfectionism and health literature in several ways. First, while previous literature has linked perfectionism to health (e.g., Gnilka et al., 2013; Gnilka, et al., 2017; Molnar et al., 2006; Smith et al., 2017), no studies have examined this relationship using a time-lagged design. As such, the design of this study allowed for investigation of the effect that time may have on the relationship between perfectionism and an individual's general mental health, and further allowed analysis to compare perfectionistic clusters in terms of drug use and whether their drug use changed over time.

Specifically, the findings of the current work suggest that, over time, AP continue to have greater levels of general mental health than both MP and NP. However, as the semester progressed, a slight, yet significant decrease in general mental health was found. When looking at Figure 1, it seems that both AP and MP clusters have slight decreases in mental health while NP seem to be relatively stable. These findings provide mixed support regarding perfectionism type and general mental health (e.g., Bardone-Cone, Weishuln, & Boyd, 2009; Chang, Hudson Banks, & Watkins, 2004; Oziblrir et al., 2014; Rice et al., 2012). In context of COR Theory (Hobfoll, 1989), it is theorized that AP may have more resources to cope with stress and may be use more adaptive coping strategies (such as engaging in healthier lifestyle habits) to effectively cope with their stress, thereby decreasing the strain that may have occurred from the stressor itself. As such, when individuals maintain their resources, they are more likely to be able to combat

stress in order to stabilize their general mental health (Folkman & Moskowitz, 2004). This was not supported in this study as, AP and MP slightly decreased in their general mental health throughout the semester. The findings of the study replicate core themes in the COR theory literature. For example, the ability to maintain resources over time allows individuals to adapt more easily and change when experiencing stressful situations (Alvaro, Lyons, Warner, Hobfoll, Martens, Labonté, & Brown, 2010). As such, although AP general health only slightly decreased, these individuals still had higher general mental health than MP and NP. This may be in part to how AP are able to consistently use their resources to manage stress appropriately.

As a precaution, supplemental analyses on working and non-working individuals was conducted and similar results were found, providing further support that AP, whether such individuals work or not, have greater general mental health than working and non-working MP and NP. Ultimately, these results replicate previous research on perfectionism and health (Aldea & Rice, 2006; Hewitt & Flett, 1990; Smith et al., 2017) suggesting that AP have greater general mental health than MP and NP.

This study offers new insights into processes that may better explain why certain individuals are more likely to drink alcohol and use tobacco. Research on smoking and drinking behaviors based on perfectionism type has been mixed. The current findings only add to this mixed literature. Previous research has suggested that MPs are more likely to use dysfunctional, emotion-based, or avoidance-type coping habits to manage their stress, while APs are more likely to use problem-focused strategies (e.g., Dunkley et al., 2006; O'Connor & O'Connor, 2003; Rice & Lapsley, 2001). However, results of this study do not fully support this notion and indicate that perfectionism type does not

influence smoking behaviors but may play a role in drinking behaviors. Literature suggests cognitive styles may influence engagement in smoking behaviors (Casper et al., 1992). As such, self-control, conscientiousness, and perfectionism are all different cognitive styles that may contribute to smoking behaviors. An explanation as to why the current work did not find support for the relationship between perfectionism type and drug use can be described by Cronk and Piasecki (2010) who indicate a variety of antecedents to smoking such as location, social connections, socializing, alcohol consumption, and stress. Because stress can be seen as an antecedent to smoking behaviors, it was predicted that AP would have lower levels of smoking. In accordance to COR theory, these individuals would have more adaptive coping strategies and more resources to cope with stressful situations than to use smoking behaviors to diffuse their stress. However, the results of this work lack alignment with the current literature on the effects that perfectionism has on smoking use, which may be due to a severe restriction of range. Additionally, the college student sample may have under or over-reported their smoking habits. Because social connections and socializing have been found to be antecedents of smoking, it was expected that college students would have generally high levels of smoking, however, individuals may have had a misunderstanding of how to answer the Smoking History Questionnaire. It is recommended that future research use a different scale to investigate whether there may be a better way of measuring smoking history.

For the reason that smoking and drinking behaviors commonly co-occur among college students (Harrison, Hinson, & McKee, 2009) and using the rationale of COR theory, it was also predicted that AP would have lower levels of drinking use than MP

and NP. Results indicated some important differences between clusters in terms of alcohol use. Specifically, there was a significant difference of alcohol use between clusters at Time 2, with AP having lower levels of alcohol use than MP at Time 2. This provides support for hypothesis two and relates to Rice and Van Arsdale's (2010) investigation of the association between perfectionism and drinking as a coping mechanism, suggesting that MP use a more negative form of coping (drinking) than AP. Yet, this finding was not replicated over time. Additionally, only MP had significant decreases in their alcohol use over time. This suggests that despite using the dysfunctional coping habit of alcohol use, that over time, MP are finding other ways to cope with their stress than using alcohol. This provides an opportunity for future research to examine how and why coping strategies used by perfectionism type, may change over time.

Furthermore, regardless of perfectionism type, alcohol use decreased from Time 1 to Time 2; this information may be useful for colleges. It may be that college students had higher levels of alcohol use during Time 1, because data collection at Time 1 occurred primarily before and during the college's mid-term schedule. As such, many students may have been misusing alcohol more to cope with the stress of school (e.g., midterm tests, projects, and evaluations). However, because data collection for Time 2 occurred after midterms, this may have resulted in reduced amounts of alcohol use, as students had less stressors occurring during their life. Additionally, there is a possibility that college students used alcohol to cope more so in the beginning of the semester in comparison to the end of the semester as they were experiencing significant life changes. For instance, making the transition from high school to college and starting a new

segment of one's life can have consequences to one's emotional state, which could potentially triggering stress to occur. In order to cope with this new experience, individuals may use alcohol to cope with this stress. It is also possible that, as the semester progressed and more course requirements were applied, that individuals had less time to drink.

Despite these findings, we must take caution when considering whether perfectionism type influences drug use. An explanation for the discrepancy in such findings can be attributed to the antecedents of drinking behaviors. Research has suggested that there are a variety of reasons as to why individuals use alcohol. For example, individuals may use alcohol to regulate one's own affective experiences (e.g., Wills & Shiffman, 1985), such that individuals may use alcohol to reduce negative affect or negative stressors when they are anxious or facing stressful situations. Parallel to this idea, individuals may also use alcohol to enhance positive affect. The results of the current work suggest that perfectionism type may or may not be an antecedent to alcohol use. Further research should continue to investigate the relationship between perfectionism and drug use to provide more stability in evidence of this literature.

Lastly, when examining how substance use may mediate the relationship between perfectionism type and general mental health, results indicated that neither smoking nor drinking behaviors explain the relationship. This asserts that perfectionism does not influence drug use, which in turn does not influence general mental health. The current work used COR theory's conceptualization of loss and gain spirals in an attempt to explain how coping strategies may mediate the relationship between perfectionism and general health. Particularly, AP were expected to experience more gain spirals. Because

AP are considered to have a greater ability to attain and maintain resources this would suggest that AP would have reduced levels of stress, thus, having greater general mental health in comparison to MP and NP (e.g., Hobfoll et al., 2018). However, the results did not support COR theory's assumptions about resource gain spirals and loss spirals in relation to one's perfectionism cluster and general mental health.

As such, future research should consider other coping mechanisms that may be used by perfectionists, whether there are differences in using such coping mechanisms between perfectionism clusters, and the impact coping strategies have on an individual. For example, forthcoming research should investigate how perfectionism clusters differ in their use of other positive copings strategies (e.g., exercising and healthy eating) and negative coping strategies (e.g., under exercising and overeating), and how these strategies may impact various consequences such as general mental health differently. Another avenue of research should consider how likely different perfectionism clusters are to use various cognitive and behavioral strategies to cope with stressful situations. By using the Ways of Coping Scale (Folkman et al., 1986), researchers could determine whether perfectionism type influences the participation in eight different styles of coping. Some examples of these different types of coping include: confrontive coping (i.e., hostile and aggressive efforts, and risk taking), distancing coping (i.e., distancing oneself from the stressful situation), self-control (i.e., efforts to regulate personal feelings and actions) and accepting responsibility (i.e., accepting one's role in the stressful situation and trying to better the situation). Focusing on a broader spectrum of problem-focused and emotion-focused coping strategies, such as the ones mentioned, may allow for a

greater distinction between the types of coping strategies that are used by perfectionism clusters.

Implications

There are several implications for counseling practice, school administrations, and organizations that can be derived from the current findings. If the ways in which individuals cope with stress is determined by one's perfectionism type, counselors, schools, and organizations can use this information to provide individuals with health seminars regarding appropriate coping strategies and ways to engage in healthier lifestyle habits. Seminars could include providing an overview of the different types of coping strategies, the importance of using adaptive and problem-focused strategies, and how the use of specific strategies impact one's general mental health. Furthermore, in cases where counselors, schools, or organizations are found dealing with individuals with perfectionism tendencies, it may be advantageous to both parties to gauge the level of adaptiveness of the perfectionism for that individual. By doing so, this may help these entities provide better recommendations on how individuals should productively cope with feelings of stress (Rice & Van Arsdale, 2010). Additionally, in terms of the current findings, schools could help combat the increases of drug use during stressful school periods (i.e., starting college, midterms, finals) by providing stress-relief activities or smoking and drinking interventions for students. Implementing such activities and interventions may be particularly useful as increases of drinking and smoking typically occur during social settings and at times of heightened stress among students. Witkiewitz and colleagues (2012) suggest that schools could provide real-time interventions via cell phones in response to fluctuations in stress or change in environmental contexts. By

doing so, this may help to encourage more adaptive coping strategies and dissuade the use of dysfunctional coping habits.

Limitations and Further Directions

To our knowledge, this is the first study to directly investigate the relationship between perfectionism, drug use, and general mental health. Despite confirming the role that perfectionism has in general mental health, there are several limitations in this study that should be considered. First, all measures within this study were single-source and self-reported. This may have introduced common method bias (Shadish, Cook, & Campbell, 2002). In addition, this study contained a total of 16 different measures (as it was part of a larger study), which may have caused fatigue during survey completion. Another limitation in this study includes the lack of diversity within the student sample, causing the sample to become more homogenous. In addition to the lack of diversity, the average age of participant in the sample was roughly 19 years old. The demographic of age may have skewed results because all participants had to be at least 18 years of age. However, throughout the survey, individuals are prompted to respond with their smoking history and alcohol use. Although the legal limit of tobacco consumption is 18, the legal limit of alcohol consumption is 21. As such, participants may have responded inaccurately to the measures of smoking history and alcohol use, which would have an effect on analyses. In addition to inaccurate measures of smoking history, the one-item Smoking History Questionnaire was used and may have impacted participants' under or over-reporting on smoking use based on confusion of the question itself.

Although this work supports previous literature that suggests perfectionism type influences general health, further research should continue to investigate perfectionism and health in a longitudinal manner to better understand various mediators of the

relationship. Future research should use a similar time-lag or longitudinal design but use an adult working sample. Using a specific organization to conduct the survey would allow for researchers to observe whether there are differences between a student population and an adult population. Although supplemental analyses were used to attempt to understand differences between working and non-working individuals, sample sizes may have restricted our ability to accurately detect effects. As previously mentioned, other mediating variables that would be worth attention are that of perceived stress, and other positive and negative coping habits (e.g., exercising and dieting). Additionally, researchers may want to use other measures of general mental health that are specifically related to mental illness/disorders. For example, anxiety can be measured using the Beck Anxiety Inventory (Beck, Brown, & Steer, 1988); depression can be measured using Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). By examining these other variables, research may find a stronger distinction between perfectionism type, the coping strategies they use, and the consequences that perfectionism has to one's general mental health.

Conclusion

In conclusion, perfectionism type has been found to influence general mental health. These findings are in support of Conservation of Resources Theory (Hobfoll, 1989) and provide possible mechanisms in which researchers may better examine ways to increase one's general mental health among perfectionist clusters of NP, MP, and AP. Understanding that AP generally have better mental health than the other clusters may allow researchers to better examine ways to increase the general mental health of NP and MP. The findings support the current literature and provide opportunities for research to

further investigate how other mediating variables may play a role in the relationship between perfectionism and general mental health, which may help in creating, maintaining, and retaining healthier individuals.

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