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The Moderating Effects Of Stress On The Relationship Between Self-Control, and Desire For Control, On Impulsive Purchasing

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THE MODERATING EFFECTS OF STRESS ON THE RELATIONSHIP BETWEEN SELF-CONTROL, AND DESIRE FOR CONTROL, ON IMPULSIVE PURCHASING

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ABSTRACT

The current study examined the effect of self-control and desire for control on impulsive purchasing with stress as a moderator. Self-control has been found to be lower in individuals who engage in impulsive purchasing (Baumeister, 2002b), whereas little to no research on the effect of desire for control on impulsive purchasing has been completed. Stress has been found to relate with self-control and desire for control (Galla & Wood 2015; Leotti, Iyengar, & Ochsner, 2003). This study hopes to fill the research gap by exploring if stress moderates self-control and desire for control's effect on impulsive purchasing.

Participants were recruited from general psychology classes from a small Midwestern college. Price assignment, product switching and willingness to pay to get shipping the next day (expedited shipping) were used to assess impulsive purchasing. It was hypothesized that stress would have a moderating effect for both self-control and desire for control's effect on impulsive purchasing. Though no moderation was found for stress on self-control and desire for control's effect on impulsive purchasing items; it was found that those with lower self-control engaged more in impulsive purchasing, which fit with the literature. This research is important to show the relationship of stress and self-control on impulsive purchasing to help guide individuals into making smarter decisions when purchasing items.

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INTRODUCTION

Impulsive purchasing is a problem that afflicts many people. Shopping lists are made, and people proceed to the store in search of those specific items. Oftentimes, people leave the store with items that were not on their list. Impulsive purchasing is a concept that has recently received much attention in the research literature. Researchers have been trying to examine on which consumer attributes, and which circumstantial factors evoke impulsive purchasing, such as personality traits, or stress. Though there have been numerous studies connecting self-control and impulsive purchasing, little to no studies have investigated all four variables, self-control, desire for control, stress, and impulsive purchasing, interactively. This research attempts to fill the gaps from previous research.

Self-Control

Self-control and self-regulation are often used interchangeably in the literature (Baumeister, 2002a). Though both concepts are similar, they possess distinct differences. Baumeister (2002a) defines self-regulation as, "encompassing both conscious and unconscious processes and sometimes referring to all behavior guided by goals or standards" (p. 129). Conversely, self-control is defined as "conscious efforts to alter behavior, especially restraining impulses and resisting temptations" (Baumeister, 2002a, p. 129). Self-control is habitually motivated by a goal of the individual, while the behavior that follows can encompass thoughts, emotions and actions. Self-regulation is a broader term than self-control. All acts of self-control are classified as acts of self-regulation, but not all acts of self-regulation are considered acts of self-control. Self-regulation, which can be an unconscious process, parts from self-control on biological

measures. This includes, but is not limited to, feeling hungry when the body needs food, a fever when a virus develops in the body, or the body healing itself of cuts and bruises. On the other hand, self-control only uses conscious processes, which are processes the individual has complete control over, including holding off eating until dinner. As mentioned above, the agent, or the individual is in control of these actions.

Another construct often studied with self-control is an impulse. Impulses are behavioral responses to a combination of motivation and an activating stimulus. An example would include an individual who is thirsty seeing a bottle of water, and then feeling an impulse to drink it. Being thirsty is the motivation, whereas seeing a bottle of water is the activating stimulus. An impulse then occurs, which is followed up by a behavioral response. The act of impulsivity is characterized by unplanned and spontaneous behavior that is a response to an impulse. Self-control can be used as a tool to suppress these impulses (Baumeister, 2002b).

Genetic/environmental influences of self-control. There is a growing debate over the origins of self-control as either genetic or environmental. Beaver, Wright, DeLisi, and Vaughn (2008) found in American adolescent sibling pairs that genetics accounted for 53 to 64 percent of variance in self-control, whereas, other researchers, such as Beaver, Schutt, Boutwell, Ratchfor, Roberts, and Barnes (2009), found that genetics accounted for 40 to 56 percent of variance in self-control. The researchers examined a subset of adolescents who used drugs and found 37 to 62 percent of this specific sample's variance in self-control was genetics. According to these studies, genetic factors may account for approximately 37 to 64 percent of the variance of self-control, whereas the rest of the variance was explained predominantly by unshared

environmental factors and the small amount of variance left was shared environmental factors. Environmental factors such as parental discipline, face to face interaction with mothers during infancy, parental supervision, and neighborhood conditions all play a role in influencing an individual's self-control (Feldman, Greenbaum, & Yirmiya, 1999; Hay, 2001; Pratt, Turner, & Piquero, 2004; Wright & Beaver, 2005). As the research shows, self-control is thought to be a mixture of both genetics and environment.

This study focuses on self-control as a trait variable, which assumes that self-control is relatively fixed after a certain age. This trait-like nature asserts that self-control can be genetic, but environmental influences can play a factor up until self-control is stable. Once self-control becomes stable, environment does not seem to have as much of an effect on self-control, which poses that self-control is either not heavily influenced by the environment or that environment is not as influential for self-control as an individual's age.

Benefits of self-control. Possessing self-control denotes numerous benefits for individuals. Tangney, Baumeister, and Boone (2004) found several benefits of having self-control in their study. High self-control individuals have been found to have: better GPAs, fewer eating regulation problems, fewer eating disorder symptoms, fewer problem drinking patterns, better psychological adjustment, better self-esteem, more conscientiousness, better emotional stability, and a higher moral emotional style. An important question posed by researchers is whether an individual can possess too much self-control, to the point where it is no longer beneficial. Tangney, Baumeister, and Boone (2004) found no link that shows too high of self-control was associated with any

form of psychological problems or disorders they measured. The researchers found that perfectionism was not strongly linked to high levels of self-control either.

Self-control in childhood has been found to predict diverse behavioral patterns in adulthood. Moffitt et al. (2011) followed participants from ages three to thirty-two. The researchers measured the level of participant's self-control as a child, and followed outcomes regarding health, wealth, and public safety in their early thirties. Results showed individuals with higher self-control were more likely to have been raised by a family in a higher socioeconomic status. Childhood self-control predicted physical health in later life including metabolic abnormalities, periodontal disease, sexually transmitted disease, and inflammation levels. Substance dependence was also found to be predicted by childhood self-control, specifically tobacco and illicit drug dependence. Participants with low childhood self-control had lower socioeconomic status and income in adulthood than their counterparts. Low childhood self-control also predicted higher rates of being a single parent and obtaining a criminal conviction. This shows evidence that childhood self-control predicts important health and behavioral aspects these individuals will possess as adults.

Another study by Mischel and colleagues (2014) further evidenced childhood self-control predicting behavioral outcomes in adulthood. The researchers conducted the well-known Marshmallow Test with children in the late 60's and early 70's. Children were brought into the room and sat at the table, while a marshmallow was placed in front of them. The children were told if the marshmallow was not eaten by the time the experimenter came back, they could obtain two marshmallows. Some of the children showed the ability to use self-control and refrained from eating the marshmallow, while

others ate the marshmallow. The study demonstrated that self-control was the primary factor in whether the children refrained from eating the marshmallow. The researchers have been following this cohort throughout the years, who are now in their forties. As of now, an update on the individuals after their thirties has not been completed. This study has been deemed as one of the first pioneering studies on self-control which has been cited and replicated by several other researchers since it was first published.

More recent replications of this original study like Kidd, Palmeri, and Aslin (2013) proposed that there may be other factors playing a part in the outcome of the marshmallow test aside from self-control. The researchers found the child's trust in the world had a contribution on the decision as well. Children who perceive the experimenters' promise as false did not wait for the second marshmallow because they believed the reward would not come. The children who had more trust in the world did wait longer, as they felt that the promise of the second marshmallow would be followed through. As this study demonstrates, there are the possibilities of other variables affecting the choice of waiting or not, but self-control is thought to be the main factor in that decision.

The first follow-up of Mischel's (2014) child participants was performed when the participants reached their adolescence. Mischel found that those who had good self-control during their preschool years, had consistent levels of self-control during their midlife. The researchers also found that the children who could use self-control to refrain from eating the marshmallow, later exhibited self-control when faced with frustration, and were less tempted, less distracted, more intelligent, self-reliant, and confident. These participants also performed better under stress and could plan and think ahead to reach

their goal. During adulthood, those who waited to eat the marshmallow were more likely to reach their long-term goals, avoid risky drug use, achieve higher education levels, and have a lower body mass index.

The researchers also scanned these participants' brains using functional magnetic resonance imaging (fMRI) in their midlife. Brain scans showed that those who waited in the Marshmallow Test had more activity in their prefrontal cortex, which is responsible for effective problem solving and controlling impulsive behavior. Those same participants also showed a more active ventral striatum, which is a part of the brain that controls desire, pleasure, and addictions. Those who utilized self-control as preschoolers still had similar levels of self-control as an adult. This suggests that self-control is stable throughout someone's life, and those who have less self-control as children, tend to have less self-control as adults. This reflects back to self-control as a trait, and whether self-control is environmental or genetic. At a certain point in an individual's life, self-control seems to establish into a trait variable. Mischel's study is suggesting that self-control becomes a trait at an earlier age, evidenced by their findings that preschoolers had similar levels of self-control in adulthood.

When self-control fails. At times, people fail at using self-control, also known as self-control failure. Baumeister, Heatherton, and Tice (1994) state there are several different reasons that self-control failure can occur. An individual's standards can cause self-control to malfunction. When an individual has multiple standards that conflict with one another, this can create strain and confusion on that individual, causing self-control to breakdown. When individuals cease to continue to monitor and evaluate their actions, they fail to adequately control their self-control. Self-assessment, or self-evaluation, is a

fundamental aspect of self-control, and self-control cannot function without these two components.

Another major function in self-control failure is explained by ego depletion theory, which states that self-control is a resource that can become depleted with use. If an individual depletes the energy reserves needed for self-control, the individual lacks the strength to use self-control, and will fail to utilize it. Another contributor, "Psychological Inertia", is a metaphor to the principle of inertia in physics where once an object has been set in motion, and the more time it has to build momentum, the harder it will be to stop (Baumeister, Heatherington, & Tice, p. 21). Likewise, the longer a behavior has been occurring, the harder it will be to stop it. This is a motive for why bad habits that have persisted for an extended period are harder to break than habits that have recently begun. Attention also plays a role in self-control. When individuals fixate all their attention on the object which they are trying to avoid, not eating a brownie for example, they are more likely to not complete the self-control task. On the other hand, this can be used to an advantage by fixating one's attention on something else to preoccupy time.

All the reasons above have demonstrated how an individual first crosses over the line of self-control failure. People are able, and often do, cross back over the line and continue utilizing self-control. What causes continuous malfunctions of self-control requires another explanation. Baumeister et al. (1994) explains what is referred to as the snowball effect. After the first cross over, this may set off other reactions that escalate into a major down-slide; turning a minor lapse in self-control quickly into a major breakdown of self-control. As demonstrated by an individual who is on a diet and has been avoiding food high in calories, the individual fixates attention on a brownie to the

point of losing self-control. At this point, the individual could step back and resume self-control; however, such individuals experience so much strong negative emotions about these minor lapses, that they feel there is no point in monitoring future eating habits. This can result in eating food which did not fit their goals, and ignoring self-control.

Failing at self-control, as described above, is quite common, but there is one way that is quite different than the rest: misregulation. Misregulation occurs when people actively try to use self-control but do so in an inefficient or counterproductive way, causing them to not reach their goal (Baumeister, Heatherton, & Tice, 1994). This can be done by using the wrong technique or method, resulting in an outcome, but not the one they were striving for. When an individual's self-control is effective, it can influence the individual's behavior in a positive way. The concept of control is a common theme among many constructs including desire for control.

Desire for Control

Desire for control is the motivation to control the events in one's life (Burger, 1979). Individuals with a high level of desire for control have the characteristics of being assertive, decisive, and active. They are motivated to control their environment by influencing others when it benefits them, avoiding unpleasant situations, and being in a leadership role in group situations. These individuals strive for high levels of achievement and are better able to estimate their level of performance. When challenged, individuals with high desire for control put in more effort and last longer when faced with a difficult task (Burger, 1985). On the other hand, individuals low in desire for control are nonassertive, passive, and indecisive. They have low motivation to control their

environment, so they are less likely to want to influence others, and prefer when others make their daily decisions on their behalf (Burger & Cooper, 1979).

There are many concepts similar to desire for control. Leotti, Iyengar, and Ochsner (2010) explain the differences between desire for control and self-efficacy, agency, internal locus of control, illusion of control, autonomy, and self-determination. The term self-efficacy and agency were both coined by Albert Bandura (1997). Agency is when an individual exerts one's own ability to create change, while self-efficacy is the individual belief in one's own abilities to accomplish a task. Internal locus of control, constructed by Julian Rotter (Rotter, 1966), is the individual's belief on whether events are controlled by the individual. On the other hand, illusion of control refers to an individual's false belief in possessing control. Autonomy and self-determination are used interchangeably and are inner motivations the individual can use to act on free will.

As shown in the previous paragraph, desire for control differs in concept from self-efficacy, agency, internal locus of control and illusion of control because they all encompass different aspects of motivation. Desire for control is not an action or a belief; it is a motivation, or a desire, to control the individual's environment, which may then lead to an action or belief. Desire for control and autonomy/self-determination both involve motivation, but the motivations behind each construct is different: Autonomy is a motivation to act freely, whereas desire for control is the motivation to control the environment. The latter can be thought of as a biological process, which can be understood from the following explanation of the construct of choice.

Leotti, Iyengar, and Ochsner (2010) define choice as "organisms…exert control over the environment by selecting behaviors that are conducive to achieving desirable

outcomes and avoiding undesirable outcomes." (p. 458). Therefore, choice is considered the selection of a desirable option, and research has shown that humans prefer having choices, even when the two choices are identical in value (Bown, Read, & Summers, 2003). Allowing individuals' choices results in added benefits to the individual such as improvement on their ability to perform a task (Cordova & Lepper, 1996). Choice is an integral part of an individual's desire for control, seeing that choice is used to achieve desirable outcomes for the individual. When individuals desire to control their environment, they must attempt to reach the desired outcome that produces that control by making the right choices, which demonstrates that choice is a step in the process for desired control.

In the current study, desire for control will be utilized as a trait variable rather than a state variable. This section illustrates how desire for control can be used as an individual's stable trait. Leotti, Iyengar, and Ochsner (2003) make a sound argument on how choice is biologically based. The prefrontal cortex (PFC) and striatum are the main processes in the brain associated with choice. The striatum is involved in the process of reward in the brain and has been found to have greater activity when an individual is rewarded after making an active choice, rather than being rewarded without making a choice. Choice can then be hypothesized as rewarding to the individual. This ties in with the definition of choice stated above that people make choices to gain desirable outcomes. When choice ends in a desirable outcome (a reward), the striatum is activated. Neuroimaging has shown that both the highly-connected striatum and PFC are activated when making active choices, and damage to either of these areas has a severe impact on motivational processes, which are needed to make a choice.

As explained above, motivation is needed for an individual to actively make a choice. When an individual makes a choice, this is a deliberate attempt to control the environment, in hopes of achieving the most desirable outcome. Environmentally, both self-control and desire for control can be effected by stress.

Stress

Stress is defined as when "environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological and biological changes" (Cohen, Kessier, & Gordon, 1995, p. 3). When an individual's environment places a higher demand on the individual than can be coped with, the individual experiences stress. Stress can have many sources which come from various aspects such as occupation, relationships, finances, etc. For example, the college population can experience stress from interpersonal, intrapersonal, environmental, and academic situations (Ross, Niebling, & Heckert, 1999). Likewise, people on different developmental stages experience different sources of stress. Folkman, Lazarus, Pimley, and Novacek (1987) found that younger participants (35-45 years of age) had significantly more stressors in the finance, work, home maintenance, personal life, and family and friend's domains than older participants (65-74 years of age). Stress plays a role in everyone's life, but individuals react to stress differently, which is believed to be due to a combination of genetics and environment (Claessens et al., 2011). Genetics are thought to be a factor in shaping how people react to stress because their bodies are programmed to respond to stress differently. Some individuals respond highly to stress whereas some do not experience as significant of a reaction to stress. Physiological results of stress include heart rate, blood pressure, and secretion of epinephrine and norepinephrine (Manuck,

Cohen, Rabin, Muldoon, & Bachen, 1991). Environment also has an impact on an individual's reaction to stress. For example, children with anxious or depressed mothers and children who were abused tend to grow up to be more reactive to stress (Meaney, 2001).

In the student population, there is significant stress related to academics and school related activities. One major academic stressor is exams. Murphy, Denis, Ward and Tartar (2009) found that during examination week, students felt more stress and had higher cortisol levels than in weeks without exams. Ross, Neibling, and Heckert (1999) found that the seven most common stressors among college students were changes in sleeping habits, vacations, changes in eating habits, new responsibilities, increased class workload, financial difficulties and changes in social activities. High academic stress causes unhealthy living habits, bad health habits, and lower self-esteem (Hudd et. al., 2000). There has been an increase over time in negative effects on college student health due to academic stress (Sax, 1997). The current study uses academic stress because of its relevance to our proposed participants, college students, which is most likely to be the most common form of stress experienced by this population.

Stress and self-control. Stress can influence one's level of self-control. For example, Oaten and Cheng (2005) found that in college student populations, stress from examinations resulted in less self-control, when compared to students that had no academic examination stress. This held true for both a laboratory task (Stroop test) and self-reported daily behaviors.

On the contrary, self-control also influences how an individual reacts to stress. This will be the focus when examining the relationship between self-control and stress

for the current study. Individuals with high self-control have better ability to cope with stressful events, which is evidenced by Galla and Wood (2015). It was found that high school students with higher self-control were better able to be mindful and think before reacting. This effect was also found for children with siblings who have cancer, who experience a type of stress called "role overload". It was also found that participants with higher self-control were less anxious and had fewer psychosomatic symptoms (Hamama, Ronen, & Rahav, 2008). Even when experiencing the same amount of stress, individuals with higher self-control exhibited less symptoms than those with lower self-control, affirming that individuals with higher self-control are better able to cope with stressful situations.

Stress and desire for control. To examine the relationship of stress and desire for control, the relationship between perceived level of control and stress must first be explained. In stressful events, an individual's perceived level of control can help reduce negative affect (Leotti, Iyengar, & Ochsner, 2003). Maier, Amat, Baratta, Paul, and Watkins (2006) demonstrate this with rats. The researchers manipulated the rats with a controllable stressor (a shock that rats could escape) or an uncontrollable stressor (a shock that rats could not escape). The rats that experienced the uncontrollable stress demonstrated more stress and physiological responses, than those faced with a controllable stressor. The rats in the controllable stress condition had less of a stress response, shown by increased activity in the medial PFC, which, as explained above, is linked with making choices. When the rats had a choice to leave the stress condition, they were less stressed. This demonstrates that those who perceive that they are in control and have choices (even if they do not) are less stressed than those who do not perceive they

are in control. Past studies have shown that individuals with a higher desire for control actively sought out the best desired outcome for their situation (Burger & Cooper, 1979), and it is thought they often perceive a higher level of control than those with low desire for control. Since people who perceive a higher level of control are less affected by stress, individuals with higher desire for control are hypothesized to be less effected by stress than those with lower desire for control.

Self-control, desire for control, and stress are all common constructs used in various areas of research. One area in which there is less research is the effect of these constructs on impulsive purchasing. This gap leaves some important research questions to be answered.

Impulsive purchasing

Impulsive purchasing is a construct that has received recent attention in psychology and has always intrigued marketers. “Impulse buying [purchasing] is a sudden and immediate purchase with no pre-shopping intentions either to buy the specific product category or to fulfill a specific buying task. The behavior occurs after experiencing an urge to buy and it tends to be spontaneous and without a lot of reflection (i.e., it is "impulsive").” (Beatty & Ferrell, 1998, p. 170). Impulsive purchasing is a common phenomenon, which has become increasingly more common over time. This is attributed to advances in buying online, over the phone, credit cards, and 24/7 stores. These new advances in technology have made it increasingly convenient to purchase items without even leaving the house.

Consequences of impulsive purchasing. Gardner and Rook (1988) surveyed individuals for their emotions after an impulsive purchase, and found that 70% of the

participants felt “better” after completing the impulsive purchase. From the qualitative data, it was hypothesized that participants were using impulsive purchasing to alter their mood. The common mood categories found in those who engaged in impulsive purchasing were depression, frustration, and boredom. This suggests that impulsive purchasing can have a rewarding effect on some individuals, but caution must be taken as this study did account for the amount of money each individual impulsively spent.

Park and Choi (2013) found two important underlying factors associated with the consequences felt by consumers after engaging in an impulsive purchase. They found that, because of impulsive purchasing, consumers often faced financial backlash. Consumers reported not having enough money to pay for important bills or the items on their shopping list. This financial backlash can lead to defaults on payments, like rent, due to lack of funds, which can cause someone significant problems. Some consumers felt disappointment in their products. Some products did not work like they thought or the item bought was never used. In this case, the impulsively bought item was a bad decision, which caused disappointment on wasted money. Avoiding impulsive purchasing can prevent negative consequences from occurring in an individual’s life.

Factors influencing impulsive purchasing. According to Tinne (2010), impulsive purchasing consists of four categories that affect impulsive purchasing: consumer characteristics, store characteristics, situational factors, and product characteristics.

Consumer characteristics. There are several characteristics that increase the consumer’s likelihood of engaging in impulsive purchasing. Individuals between the ages of 18 and 39 have been found to be more at risk for engaging in impulsive purchasing

(Tinne, 2010). Women tend to be more impulsive when shopping than men, and women tend to be drawn to items that evoke emotion and relationships, whereas men are drawn toward leisure and functional items. Culture seems to have an impact on an individual's impulsive purchasing. Those who consider the aspect of materialism to be especially important in their lives tend to be more impulsive when shopping. Consumers who like to shop for fun tend to be impulsive shoppers, tend not to stay strictly to their shopping list, and like to browse around the store.

***Store characteristics*:** There are several things found to increase impulse buying in stores (Tinne, 2010). Stores that have salespeople present to decrease consumer frustration and assist the consumer with selecting a product to purchase increases impulsive purchasing. A stimulating atmosphere in the store increases arousal and alertness for impulsive purchasing, such as fast tempo music and warm colors. The type of store also impacted impulsive purchasing, as most impulsive purchasing happens in grocery stores.

Situational factors. These are a combination of environmental and personal factors that are present with impulsive purchases (Tinne, 2010). The amount of time the consumer shops can impact impulsive purchasing. The more time a consumer spends in a store, the more likely that person is to browse the store and find items not on their shopping list. Money is another factor because the more money the individual possesses, the greater the capacity to engage in impulsive purchasing. Having other people around can influence an impulsive purchase. When individuals are in groups, they spend more money on things like eating out or spontaneous fun activities. On the other hand, the

presence of a group can also hinder an impulsive purchase if the consumer anticipates being judged for the purchase.

***Product characteristics*.** The type of product can influence an individual's impulsive shopping behavior (Tinne, 2010). Hedonic and utilitarian products are thought to show highest impulsive purchasing rate. Hedonic items are considered enjoyable and pleasurable; for example, a gaming device or fine wine. Utilitarian items are considered for their usefulness; for example, a backpack or a couch. The price of the product is also important as sales and discounts tend to increase impulsive purchasing.

Impulsive purchasing and self-control. As shown before**,** self-control is used to inhibit impulses. The individual suppresses the impulse by consciously controlling personal behavior. When individuals engage in impulsive purchasing, it is believed their self-control is lacking or failing (Baumeister, 2002b; Verplanken & Sato, 2011; Vohs et al., 2008; Vohs & Faber, 2007). The current study utilizes self-control as a trait variable that affects impulsive purchasing, which is a result of low (or a lack of) self-control.

As explained earlier in this paper, Baumeister, Heatherton, and Tice (1994) explain the different ways in which self-control can fail. Two important ones will be addressed here regarding impulsive purchasing, and how differing levels of self-control affect whether self-control will malfunction.

Individuals with higher self-control will be better able to suppress impulses by using coping mechanisms to avoid self-control breakdown. There are several explanations as to the cause of one not using self-control effectively. One of these ways of failing at self-control is having conflicting standards. A conflicting standard could be the individual wishes to save their money, but also has a strong urge to have the item.

Because these two standards are conflicting, they can lead to "paralysis, confusion and other dysfunctional patterns…" causing self-control to malfunction (Baumeister, 2002b, p. 15). Individuals low in self-control are thought to be easily persuaded in the moment to buy things they were not planning to buy (Baumeister, 2002b). This suggests that individuals low in self-control would gravitate toward the easier and more tantalizing choice, in this case, buying the item. Individuals high in self-control seem to have adapted ways to bypass this conflicting paralysis.

Another self-control failure is reduction of monitoring. If an individual stops monitoring spending, this person is more likely to engage in impulsive purchasing. Self-monitoring is essential for self-control. Without self-monitoring, self-control is extremely difficult, maybe even impossible. Individuals who cannot use self-monitoring are thought to be lower in self-control. Whereas, individuals that utilize self-monitoring are less likely to experience self-control malfunction. People higher in self-control are able to effectively use self-monitoring by managing their money more effectively (Romal & Kaplan, 1995). These individuals who used self-monitoring were less likely to engage in impulsive purchasing (Sharma, Sivakumaran, & Marshall, 2010).

Impulsive purchasing and desire for control. There is little to no research investigating an individual's level of desire for control and impulsive purchasing. Inferences will be made from what is already known about desire for control and impulsive purchasing. Individuals high in desire for control are expected to seek out the best situation for themselves, and avoid any unfavorable situations (Burger, 1979). This could hold true for impulsive purchasing. As mentioned earlier, impulsive purchasing can lead to negative consequences after the purchase (Park & Choi, 2013). It is anticipated

that individuals high in desire for control would avoid situations that have a high likelihood of caving into temptation by avoiding the temptation itself, and therefore, avoiding the impulse to buy that item. Individuals low in desire for control are more passive and indecisive. If an impulse were to come up while shopping, those lower in desire for control will be less decisive as they prefer other people to make the decision for them. Because of this, they are more likely to buy the item, especially if they are persuaded by the advertising of the item or if they go with the bigger driving force for their decision (the impulse).

Hypotheses

Based on previous studies, this research examined if different levels of self-control and desire for control affect impulsive purchasing differently when exposed to stress. Research has shown that those lower in self-control will exhibit more impulsive purchasing decisions (Baumeister, 2002b), and those higher in self-control are thought to exhibit less impulsive purchasing decisions. Individuals higher in self-control will be less effected by stress and those lower in self-control will be more effected by stress (Hamama, Ronan, & Rahay, 2008).

H1: The effect of self-control on impulsive purchasing will be moderated by stress.

It is expected that individuals higher in desire for control will exhibit less impulsive purchasing decisions and those lower in desire for control will exhibit more impulsive purchasing decisions. Also, individuals higher in desire for control have been found to be less affected by stress than those lower in desire for control (Leotti, Iyengar, & Oshner, 2003).

H2: The effect of desire for control on impulsive purchasing will be moderated by stress.

Method

Measures

Demographics. Participants were asked a series of demographic questions at the end of the survey, including sex, ethnic/racial identity, and age. Participants were asked past impulsive purchasing behaviors including the frequency with which they engaged in impulsive shopping, whether they thought carefully before buying items, and if they browse items that are not on their list.

Stress manipulation. The level of stress was manipulated via self-constructed vignettes [Appendix A]. An academic stressor was chosen due to the population being studied. One group received the stress manipulation vignette, while the other group received a control. If both the stress and non-stress conditions had the same effect on impulsive purchasing, then it could be safely assumed that stress had no effect on purchasing decisions. A stress manipulation check was used utilizing a five-point Likert-type scale (1=not stressed, 5=very stressed), participants were asked "How stressed did this make you?".

Self-control. Self-control was measured using the Self-Control Scale by Tangney, Baumeister, and Boone (2004) [Appendix B] which measures trait self-control. This measure consists of 36 questions in which 24 of them are reversed. An example would be "I spend too much money," measured on a 5-point Likert-type scale (1=not at all, 5=very much). This measure has an alpha of .89 and a test-retest of three weeks at .89.

Desire for control. Desire for control was measured by the Desirability of Control Scale created by Burger and Cooper (1979) [Appendix C]. The variable of desire for control is also measured as a stable trait. This scale includes 20 questions with 5 items

reverse scored. An example would be “I enjoy making my own decisions,” measured on a 7-point Likert-type scale (1=The statement doesn’t apply to me at all, 7=The statement always applies to me). Test-retest of 6 weeks was found to be .75. This scale had discriminant validity against the very close construct of locus of control. There is a small negative (-.19) correlation between them.

Impulsive purchasing. There were three ways in which impulsive purchasing was measured in this study. Shopping items were chosen that were thought to be hedonic or utilitarian, as consumers tend to buy items they perceive as hedonic or utilitarian when engaging in unplanned purchases (e.g., Madhavaram & Laverie, 2004; Tinne, 2010). The first measurement was price assignment, also known as willingness to pay. Participants were asked to enter the dollar amount they would be willing to pay for each item. The participants saw five items mixed between utilitarian and hedonic products (a backpack, a giant gummy bear, a lava lamp, a blanket, and a popcorn popper) with a value of approximately 20 dollars. Participants’ answers were compared in stress versus no stress condition to see if stress increases one’s willingness to pay more than their non-stressed counterparts. Past studies have shown that participants who have lower self-control, and those exposed to a stressful situation, were willing to pay more for items than their counterpart control group (Chae & Zhu, 2012; Vohs & Faber, 2007). Since both groups are associated with increased impulsive purchasing, their willingness to pay more would suggest their likelihood to engage in impulsive purchasing. Price assignment relates to impulsive purchasing because consumers who are willing to give items a higher value are not employing the successful strategies that inhibit impulsive purchasing (Rook & Fisher,

1995). This implies that those who value items at a higher cost, do not possess the mental strategies to effectively inhibit impulsive purchasing.

The second measurement is measured through an online product switching task. This measure attempted to simulate a shopping experience for participants. The participants were told that they were shopping for a new pair of jeans, and they planned to spend $20 on this item. The participants first picked a pair of jeans out of four options, making the experience more personal for the participant, all worth $20. Participants were then shown three other related items, a hoodie, sneakers, or gloves, that other people shopping for jeans had reviewed. They were given the choice between those three options or the jeans. These objects had been chosen to be gender neutral, so there would be no bias between the male and female participants. The participants chose one of the three alternate products or choose the pair of jeans (1=most likely to purchase the jeans, 7=most likely to purchase one of the other items). If participants choose the alternative product over the jeans, this was perceived as an impulsive purchase because a more tempting object has been offered and the participants chose that over what they had planned to buy. This supports Beatty and Ferrell's (1998) conclusion that impulsive purchasing occurs if the consumer buys something spontaneously that they had not planned to buy ahead of time. This study is attempting to emulate that. If the participants shopping for jeans are faced with other items that are not on their list, they are engaging in impulsive purchasing if they choose an item not on their list.

The last way this study evaluated impulsive purchasing was through expedited shipping. Those who were willing to get something sooner for more money were considered to be engaging in an aspect of impulsive purchasing. This was assessed by

showing the participants five items (a blender, a wireless computer mouse, a game, magnetic putty, and a thermos around $20). The participants were then asked the amount of money they would be willing to pay for the next day shipping option. If they were willing to pay more to get it sooner, they were thought of as more impulsive.

Those who engage in impulsive purchasing are found to be impulsive (Wells, Parboteeah, & Valacich, 2011). Baumesiter (2002b) describes impulses as "resulting from the encounter between a motivation and some activating stimulus" (p. 670). An example of this could be the use of expedited shipping. First, an individual views something they wish to have (activating stimulus), and then has an impulse to obtain it (motivation). The individual wishes to have it immediately, thus requiring expedited shipping. Expedited shipping is driven by an impulsive desire to have the acquired item sooner rather than later. So, the more that participants are willing to pay to get an item sooner, the more they are seen as impulsive.

After each of the items were presented, there were three manipulation checks. For each item, participants were asked to rate how likely they were to purchase the item and how much they liked the item. This was to examine the items that the participant did not choose, or would pay less for. For the "How likely are you to purchase this item?" manipulation check, it was examined if the participants would actually buy that product; this distinguished whether the participants did not choose, or paid less for the item, because they were not likely to purchase the item, or if they were not engaging in impulsive purchasing. For the "I like this item" manipulation check, it could be distinguished whether items were not picked, or paid less for, because they were not liked or because they were not impulsively purchased. This manipulation check also verified

whether the items were gender neutral. If both genders tended to like or dislike the product about the same, the item is considered gender neutral. Participants were asked if they already owned that item. This was to ensure that the participants were not engaging in impulsive purchasing due to self-control and not due to already owning the item.

Pilot Study

Participants

Participants were recruited online through Amazon's Mechanical Turk^{Tm}. There was a total of 50 participants (17 females and 33 males, M_{AGE} = 31.16, SD_{AGE} = 8.10) who were randomly assigned to either the stress or control group. In the study, 25 participants identified as Asian, 16 as White, 3 as American Indian, 3 as Other, 2 as African American, and 1 as Hispanic. Only 15 were identified as current college students. All data were collected by following APA ethics guidelines.

Procedure

Two links were posted on Amazon's Mechanical Turk^{Tm}. Participants willingly chose to participate in the survey in compensation of $0.50. Half of the participants were assigned to the stress group, whereas the other half were assigned to the control group. Upon start of the survey, all participants were required to fill out a consent form before participating in the survey. Once consent was read, all participants filled out the Self-Control Scale and the Desirability for Control Scale. Those assigned to the stress condition were given the stress manipulation vignette. They completed a manipulation check to ensure they found the stress manipulation stressful.

Participants then completed the three impulsive purchasing measures, as described above in the impulsive purchasing section. Lastly, participants filled out

demographic information. Once the survey had been completed, participants read the debriefing statement.

Results

Data cleaning. Prior to analysis, the variables (Self-control, Desire for Control, all five price assignment item prices, and all five expedited shipping item prices) were analyzed to identify missing data. In addition, any violations of the assumptions were tested. The data were screened for outliers using the criterion of +/- 3.29 standard deviations from the mean (Tabachnick & Fidell, 2013). Self-control and Desire for Control had no outliers. There were multiple outliers for the price assignment and expedited shipping tasks. Outliers were removed from further analysis.

The data was screened for normality. The variables of the Giant Gummy Bear and Magnetic Putty were found to be positively skewed ($z = 5.03$, $z = 3.46$), and the Giant Gummy Bear was found to be leptokurtic ($z = 3.53$). All other variables (Self-control, Desire for Control, and the remainder of the item prices) were found to have normality by the +/- 3.29 criterion. To examine the assumptions of linearity and homoscedasticity, the variables were all plotted against each other in several bivariate scatter plots. Though not perfect, a linear trend was found. There did not appear to be any evidence of curvilinear relationships. Homoscedasticity seemed to be even on all scatter plots. A Levene's test was run for stress condition and the 10 items; all but the blender ($F(1, 37) = 5.72$, $p = .02$) was found to have homoscedasticity. This shows that stress condition on the blender does not have homoscedasticity. Thus, the analysis was preceded with caution.

Stress Manipulation. A t-test was run to compare the manipulation check between the participants in the stress and control group. The mean for the stress group (*M*

= 1.68, *SD* = .90) was found was found to be significantly more stressful than the control group (*M* = 2.88, *SD* = 1.09, *t*(48) = -4.24, *p* < .001). It was concluded that the stress manipulation vignette succeeded in its intended purpose.

Impulsive purchasing items. All 10 items were found to be gender neutral except for the giant gummy bear, which was significantly preferred by females (*M* = 2.25, *SD* = .93) than males (*M* = 3.04, *SD* = 1.17), *t*(42) = 2.30, *p* = .03) on a Likert-type scale, where 1 indicates a strong like of the item and 5 indicates a strong dislike of the item. On a scale of 1 indicating the item is more hedonic and 5 indicating the item is more utilitarian, based on the means, the participants felt that the hedonic items included the lava lamp (*M* = 2.41, *SD* = 1.06), the Cards Against Humanities game (*M* = 1.82, *SD* = .914), the gummy bear (*M* = 2.02, *SD* = 1.05), and the putty (*M* = 1.92, *SD* = 1.01). They felt the utilitarian items were the blanket (*M* = 3.82, *SD* = 1.17), the popcorn popper (*M* = 3.25, *SD* = 1.16), the blender (*M* = 3.77, *SD* = .99), the mouse (*M* = 3.59, *SD* = 1.14), the backpack (*M* = 3.84, *SD* = .99), and the thermos (*M* = 3.82, *SD* = 1.05). The utilitarian items tended to have higher means and were closer to the actual price value of the items ($20). See Table 1 for means, standard deviations, and range of prices assigned to each item.

Moderation and main effects. For this analysis, the continuous predictors Self-control, Desire for Control and the dichotomous predictor Stress Condition were used in a regression procedure. The predictors of Self-control, Desire for Control and Stress Condition were entered to assess the main effects of each predictor variable simultaneously. The interaction between Self-control, Desire for Control and Stress Condition was assessed by entering the product terms Self-control x Stress Condition,

Self-control x Desire for Control, and Desire for Control x Stress Condition. This is done for each of the continuous predictors, the 10 item prices (from price assignment and expedited shipping) and online product switch item choice Each item was assessed separately to explore if any of the items showed any moderation or main effects and the strength of those relationships. Of all 11 regression moderations, none were found significant ($p > .05$). See Table 2 for statistics on all 11 models.

Price Assignment. Self-control, Desire for Control, and Stress Condition were included in this regression model to predict price assignment for the backpack. The overall model was not significant, $R^2 = .16$, $F(6, 37) = 1.20$, $p > .05$. There were no main effects found for Self-control, $\beta = -.01$, $t(37) = -0.01$, $p > .05$, Desire for Control, $\beta = -.43$, $t(37) = -0.35$, $p > .05$, or Stress Condition, $\beta = 1.85$, $t(37) = 1.30$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = .80$, $t(37) = 0.40$, $p > .05$, Self-control x Stress Condition, $\beta = -.89$, $t(37) = -.74$, $p > .05$, and Desire for Control x Stress Condition, $\beta = -.95$, $t(37) = -.86$, $p > .05$.

Self-control, Desire for control, and Stress Condition were included in this regression model to predict price assignment for the blanket. The overall model was not significant, $R^2 = .09$, $F(6, 37) = .62$, $p > .05$. There were no main effects found for Self-control, $\beta = .45$, $t(37) = .37$, $p > .05$, Desire for Control, $\beta = -.10$, $t(37) = -.08$, $p > .05$, or Stress Condition, $\beta = .08$, $t(37) = .05$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = -.07$, $t(37) = -.03$, $p > .05$, Self-control x Stress Condition, $\beta = -1.22$, $t(37) = -.97$, $p > .05$, and Desire for Control x Stress Condition, $\beta = 1.07$, $t(37) = .92$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict price assignment for the giant gummy bear. The overall model was not significant, $R^2 = .06$, $F(6, 37) = .40$, $p > .05$. There were no main effects found for Self-control, $\beta = .21$, $t(37) = .17$, $p > .05$, Desire for Control, $\beta = -.22$, $t(37) = -.17$, $p > .05$, or Stress Condition, $\beta = .24$, $t(37) = .16$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = .01$, $t(37) = .01$, $p > .05$, Self-control x Stress Condition, $\beta = -.53$, $t(37) = -.42$, $p > .05$, and Desire for Control x Stress Condition, $\beta = .14$, $t(37) = .12$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict price assignment for the lava lamp. The overall model was not significant, $R^2 = .01$, $F(6, 37) = .78$, $p > .05$. There were no main effects found for Self-control, $\beta = .42$, $t(37) = .34$, $p > .05$, Desire for Control, $\beta = .14$, $t(37) = .11$, $p > .05$, or Stress Condition, $\beta = 2.16$, $t(37) = 1.77$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = -.06$, $t(37) = -.03$, $p > .05$, Self-control x Stress Condition, $\beta = -2.19$, $t(37) = -1.76$, $p > .05$, and Desire for Control x Stress Condition, $\beta = -.47$, $t(37) = -.41$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict price assignment for the popcorn popper. The overall model was not significant, $R^2 = .16$, $F(6, 37) = 1.14$, $p > .05$. There were no main effects found for Self-control, $\beta = -1.97$, $t(37) = -1.67$, $p > .05$, Desire for Control, $\beta = -2.22$, $t(37) = -1.76$, $p > .05$, or Stress Condition, $\beta = .28$, $t(37) = .20$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = 3.38$, $t(37) = 1.69$, $p > .05$, Self-

control x Stress Condition, β = .75, $t(37)$ = .62, p > .05, and Desire for Control x Stress Condition, β = -.90, $t(37)$ = -.81, p > .05.

Online Product Switch. There was one regression run for the online product switch. Self-control, Desire for Control, and Stress Condition were included in this regression model to predict product switch. The overall model was not significant, R^2 = .03, $F(6, 43)$ = .23, p > .05. There were no main effects found for Self-control, β = -.47, $t(43)$ = -.40, p > .05, Desire for Control, β = -.90, $t(43)$ = -.69, p > .05, or Stress Condition, β = .33, $t(43)$ = .23, p > .05. The interactions were also not significant for Self-control x Desire for Control, β = 1.15, $t(43)$ = .58, p > .56, Self-control x Stress Condition, β = -.77, $t(43)$ = -.63, p > .05, and Desire for Control x Stress Condition, β = .40, $t(43)$ = .38, p > .05.

Expedited Shipping. Self-control, Desire for Control, and Stress Condition were included in this regression model to predict expedited shipping for the blender. The overall model was not significant, R^2 = .18, $F(6, 32)$ = 1.18, p > .05. There were no main effects found for Self-control, β = -.70, $t(32)$ = -.57, p > .05, Desire for Control, β = -1.13, $t(32)$ = -.87, p > .05, or Stress Condition, β = .13, $t(32)$ = .08, p > .05. The interactions were also not significant for Self-control x Desire for Control, β = 1.69, $t(32)$ = .83, p > .05, Self-control x Stress Condition, β = -.94, $t(32)$ = -.74, p > .05, and Desire for Control x Stress Condition, β = .97, $t(32)$ = -.80, p > .05.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict expedited shipping for the Cards Against Humanities game. The overall model was not significant, R^2 = .11, $F(6, 32)$ = .65, p > .05. There were no main effects found for Self-control, β = -.39, $t(32)$ = -.30, p > .05, Desire for Control, β =

-.75, $t(32) = -.55$, $p > .05$, or Stress Condition, $\beta = .28$, $t(32) = .16$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = .64$, $t(32) = .30$, $p > .05$, Self-control x Stress Condition, $\beta = -.75$, $t(32) = -.57$, $p > .05$, and Desire for Control x Stress Condition, $\beta = .76$, $t(32) = .60$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict expedited shipping for the magnetic putty. The overall model was not significant, $R^2 = .13$, $F(6, 32) = .80$, $p > .05$. There were no main effects found for Self-control, $\beta = -.93$, $t(32) = -.74$, $p > .05$, Desire for Control, $\beta = -1.62$, $t(32) = -1.21$, $p > .05$, or Stress Condition, $\beta = -.06$, $t(32) = -.04$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = 1.84$, $t(32) = .87$, $p > .05$, Self-control x Stress Condition, $\beta = -1.42$, $t(32) = -1.09$, $p > .05$, and Desire for Control x Stress Condition, $\beta = 1.67$, $t(32) = 1.33$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict expedited shipping for the thermos. The overall model was not significant, $R^2 = .13$, $F(6, 32) = .80$, $p > .05$. There were no main effects found for Self-control, $\beta = -.32$, $t(32) = -.25$, $p > .05$, Desire for Control, $\beta = -1.07$, $t(32) = -.80$, $p > .05$, or Stress Condition, $\beta = -1.05$, $t(32) = -.63$, $p > .05$. The interactions were also not significant for Self-control x Desire for Control, $\beta = .81$, $t(32) = .38$, $p > .05$, Self-control x Stress Condition, $\beta = -.02$, $t(32) = -.02$, $p > .05$, and Desire for Control x Stress Condition, $\beta = 1.18$, $t(32) = .94$, $p > .05$.

Self-control, Desire for Control, and Stress Condition were included in this regression model to predict expedited shipping for the wireless computer mouse. The overall model was not significant, $R^2 = .15$, $F(6, 32) = .93$, $p > .05$. There were no main

effects found for Self-control, β = .40, $t(32)$ = .32, p > .05, Desire for Control, β = -.11, $t(32)$ = -.08, p > .05, or Stress Condition, β = -0.5, $t(32)$ = -.30, p > .05. The interactions were also not significant for Self-control x Desire for Control, β = -.23, $t(32)$ = -.11, p > .05, Self-control x Stress Condition, β = .24, $t(32)$ = .19, p > .05, and Desire for Control x Stress Condition, β = .48, $t(32)$ = .38, p > .05.

Discussion

Changes made to Study1 from Pilot Study. The results from the Pilot study indicate that there was no moderation effect or any subsequent main effects. Though stress manipulation was effective in this study, it did not impact participants' impulsive purchasing behavior. Since the literature shows a strong effect of stress on impulsive purchasing, it was wondered if the effect of this stress lasted through all the impulsive purchasing measures (Mathwick, Malhotra, & Rigdon, 2001). Thus, another stress condition was added to Study 1 based on our Pilot test results. This was to create a stronger stress manipulation effect throughout the entire impulsive purchasing section.

To further assist the stress condition having an effect throughout the impulsive purchasing section, the items were reduced to a more manageable size. The online product switch did not yield any significant results. Thus, this online product switching measure was eliminated in Study 1, while the price assignment and expedited shipping measures were kept. The expedited shipping items were reduced to two items: one hedonic and one utilitarian. The two items to be included in Study 1, were the wireless computer mouse and the Cards Against Humanities game. Cards Against Humanities was chosen over the magnetic putty due to a higher preference by the participants. The wireless computer mouse was chosen over the thermos due to it being a stronger model

predictor. Wireless computer mouse was chosen over the blender because mouse showed higher preference and was thought to be the more practical item that a college student would buy.

Price assignment items were also reduced to two items: a backpack and a lava lamp. The backpack and blanket showed similar preference from our sample as the most liked utilitarian items. Between these two items, backpack showed the higher preference and was thus selected for Study1. The gummy bear was the most preferred hedonic item but it showed gender bias. Therefore, the second most liked hedonic item, the lava lamp, was chosen.

When testing for the moderation effect in regression, it was found that Desire for Control added no significance to the model. Since Self-control was the principle interest at the outset of this study, Desire for Control will be eliminated in Study 1. Therefore, hypothesis 2 will not be tested in Study 1.

Lastly, due to the large number of outliers found in relation to how much one is willing to pay (17 outliers were removed), price assignment and expedited shipping responses in Study 1 will be limited to a set price range to reduce this issue. Participants will be given a maximum amount of $50 to spend and asked how much they would be willing to spend.

Study 1

Participants

Participants were recruited from general psychology courses both online and on campus from a small Midwestern university. There were 146 participants who complete the survey, 137 of the cases were used (80 females, 56 males, and 1 other, M_{AGE} = 24.12,

SD_{AGE} = 8.47, 56 in control group, 81 in stress group). The majority of participants were white (102 participants). The other ethnicities included 17 Hispanic, 10 African-American, 6 Asian, 1 American Indian/Alaskan native, and 1 other.

Procedure

The two hyperlinks were made available to Fort Hays State University general psychology classes. Participation was voluntary. One hyperlink provided was for the stress condition, and the other hyperlink provided was for the control condition. All participants were asked to fill out a consent form before they participated in the survey. If consent was not given, participants were taken straight to the debriefing form. One group of participants were shown the stress manipulation paragraph and the other group was shown the control paragraph. Participants then filled out the price assignment task. The participants were asked to identify how much they were willing to pay (between 0 and 50 dollars) for the backpack and the lava lamp.

Participants then took another stress manipulation task. The stress condition group was asked to write a paragraph about past stress, while the control group was asked to write a paragraph about their day. They then completed the expedited shipping task. They were asked how much they would be willing to pay (between 0 and 50 dollars) to receive the Cards Against Humanities game and a wireless computer mouse the next day. For each of the items, they were asked how much they liked the item, their likeliness to buy the item, and whether they owned the item.

All participants filled out the Self-Control Scale. Lastly, participants completed demographic information. Once this was completed, they were shown the debriefing form.

Results

Data Cleaning. Prior to analysis, the variables (Self-control, Stress Condition and the Impulsive Purchasing items) were analyzed using a host of statistical techniques in hopes of discovering any missing data, and/or violations of the assumptions of the statistical tests used. A frequency analysis was conducted on the continuous predictor Self-control and the four impulsive purchasing items. Three variables were found to be skewed and one was found to have abnormal kurtosis (see Table 3). The lava lamp (z = 3.37), the wireless mouse (z = 5.31), and the card game (z = 6.62) were all found to be positively skewed. The card game (z = 4.32) was found to be leptokurtic.

The data was then screened for possible outliers using the criterion of +/- 3.29 (Tabachnick & Fidell, 2013). All were standardized prior to screening for outliers. Results indicated that there were two outliers at 3.31. However, since they were close to the criterion, the decision was made to keep them in the data. Next, the data was examined for missing data. Self-control question 10 had four missing values. Missing data were found to be missing completely at random and the three cases were deleted from the data set due to a large sample size. There were other cases deleted. One case was deleted due to the participant being under 18 years-of-age. Another four were deleted due to not consenting to research. One other case was deleted due to taking the survey twice, the first submitted survey was kept. This came to the total 137 cases left for analysis.

To examine the assumptions of linearity and homoscedasticity, the variables were all plotted against each other in several bivariate scatter plots. Although the linear relationships were not perfect, they seemed to exhibit linear trends. There was no

evidence of curvilinear relationships. Homoscedasticity was not perfect, but it appeared to be adequate. A Levene's test was run for Stress Condition and each item (Computer mouse $F(2, 134) = .21$, $p > .05$; Game $F(2, 134) = .12$, $p > .05$; Backpack $F(2, 134) = .53$, $p > .05$; Lava Lamp $F(2, 134) = .57$, $p > .05$). All items were found as normal. To test for multicollinearity, correlations were calculated between the three predictor variables. None of the predictor variables were found to be severely correlated. Following these screening procedures, the analysis proceeded.

Measure of Self-control. Self-control scores were analyzed. The Self-Control Scale has a possible range of 36 to 180; the range of this data spanned from 88 to 125 with a mean of 108.67 and standard deviation of 6.99. After further investigation, it was found that females (M =110.24, SD = 6.87) scored significantly higher than males (M = 106.35, SD = 6.23) on Self-control, $t(134) = -3.26$, $p = .001$.

Stress Manipulation. Data from the two stress condition manipulation checks were analyzed. A t-test was run to check for significance between the two stress conditions and their effect on the two stress manipulation checks. Results indicate that there is a significant relationship between the stress (M = 4.25, SD = .99) and control condition (M = 2.96, SD = 1.14) on the stress manipulation paragraph, $t(134) = -6.98$, $p < .001$. When the manipulation check was analyzed for gender differences using an independent samples t-test, females (M = 3.94, SD = 1.21) were significantly more likely to be stressed than males (M = 3.42, SD = 1.29) after reading the stress manipulation paragraph, $t(134) = -2.45$, $p = .04$.

The second stress manipulation check involving writing a stressful paragraph was analyzed. The stress condition (M = 2.75, SD = 1.35) was significantly more stressful

than the control condition (M = 1.96, SD = 1.06), $t(134) = -3.83$, $p < .001$. Gender differences were analyzed for the second stress manipulation check and females (M = 2.62, SD = 1.27) were significantly more stressed than males (M = 2.16, SD = 1.29) by the stress writing task, $t(134) = -2.08$, $p = .02$. The second stress condition asking participants to state a stressful time from their past was analyzed for content. The main categories indicated were family, school, life changes, work, unforeseen circumstances, money, and medical/mental health issues. To see the categories broken down, please refer to Table 4.

Analysis for main hypothesis (hypothesis 1)

Moderation and main effects for Self-control. For this analysis the continuous predictors of Self-control and Stress Condition were used in a two-step hierarchical regression procedure. In Step 1, the predictors of Self-control and Stress Condition were entered to assess the main effects of each predictor. In Step 2 the interaction between Self-control and Stress Condition was assessed by entering the product term Self-control x Stress Condition (please refer to Table 5).

Price Assignment. The moderation model testing for the effects of Self-control and stress to predict price assignment for the backpack was found to be significant, R^2 = .04, $F(3, 133) = 2.87$, $p = .04$. The main effect of Self-control was significant, $\beta = -.21$, $t(134) = -2.54$, $p = .01$. The main effect of Stress Condition was not significant, $\beta = -.07$, $t(134) = -.87$, $p > .05$. The interaction effect of Self-control x Stress Condition was not significant, $\beta = -.15$, $t(133) = -1.16$, $p > .05$.

In the moderation model testing for the effects of Self-control and stress to predict price assignment for a lava lamp, the model was found not to be significant, $R^2 = .04$,

$F(3, 133) = 1.73$, $p > .05$. The main effects of Self-control, $\beta = .08$, $t(134) = .91$, $p > .05$, and Stress Condition, $\beta = -.12$, $t(134) = -1.34$, $p > .05$, were not significant. The interaction effect of Self-control x Stress Condition was not significant, $\beta = -.20$, $t(133) = -1.56$, $p > .05$.

Expedited Shipping. The moderation model testing for the effects of Self-control and stress to predict expedited shipping for the wireless computer mouse was found to be significant, $R^2 = .07$, $F(3, 133) = 3.25$, $p = .02$. The main effect of Stress Condition was significant, $\beta = -.25$, $t(134) = -2.95$, $p < .01$. The main effect of Self-control was not significant, $\beta = .09$, $t(134) = 1.05$, $p > .05$. The interaction effect of Self-control x Stress Condition was not significant, $\beta = -.04$, $t(133) = -.30$, $p > .05$.

The moderation model testing for the effects of Self-control and stress to predict expedited shipping for the Cards Against Humanities game was not significant, $R^2 = .02$, $F(3, 133) = .68$, $p > .05$. The main effects of Self-control, $\beta = -.12$, $t(134) = -1.41$, $p > .05$, and Stress Condition, $\beta = -.02$, $t(134) = -.22$, $p > .05$, were not significant. The interaction effect of Self-control x Stress Condition was not significant, $\beta = .02$, $t(133) = .14$, $p > .05$.

Likelihood to purchase analysis.

The moderation model testing for the effects of Self-control and stress to predict likelihood of purchasing the backpack was not significant, $R^2 = .02$, $F(3, 133) = .98$, $p > .05$. The main effects of Self-control, $\beta = -.9$, $t(134) = -1.00$, $p > .05$, and Stress Condition, $\beta = -.05$, $t(134) = -.57$, $p > .05$, were not significant. The interaction effect of Self-control x Stress Condition was not significant, $\beta = -1.68$, $t(133) = -1.26$, $p > .05$.

For moderation model tested for the effects of Self-control and stress to predict likelihood of purchasing the lava lamp was significant, $R^2 = .09$, $F(3, 133) = 4.59$, $p < .01$. The main effect of Stress Condition was significant, $\beta = -.25$, $t(134) = -2.95$, $p < .01$. The main effect of Self-control was not significant, $\beta = .07$, $t(134) = .89$, $p > .05$. When the interaction was added in Self-control, $\beta = .26$, $t(134) = 2.12$, $p < .05$, became significant and Stress Condition became non-significant, $\beta = 2.35$, $t(134) = 1.84$, $p > .05$. The interaction effect of Self-control x Stress Condition was significant, $\beta = -2.61$, $t(133) = -2.04$, $p < .05$. See Figure 1 for a graph. The moderation was explored further by running a regression with Self-control as the predictor and likelihood of purchasing the lava lamp as the criterion. This was compared between the stress and control group. The regression for the stress group was found to be not significant, $t(79) = -1.03$, $p = .31$. The regression for the control group was also found to be non-significant, $t(54) = 1.57$, $p = .12$.

The moderation model testing for the effects of Self-control and stress to predict likelihood of purchasing the wireless computer mouse was not significant, $R^2 = .03$, $F(3, 133) = 1.17$, $p > .05$. The main effects of Self-control, $\beta = -.06$, $t(134) = -.68$, $p > .05$, and Stress Condition, $\beta = .04$, $t(134) = .49$, $p > .05$, were not significant. The interaction effect of Self-control x Stress Condition was not significant, $\beta = 2.23$, $t(133) = 1.68$, $p > .05$.

The moderation model testing for the effects of Self-control and stress to predict likelihood of purchasing the Cards Against Humanities game was not significant, $R^2 = .01$, $F(3, 133) = .61$, $p > .05$. The main effects of Self-control, $\beta = .01$, $t(134) = .12$, $p > .05$, and Stress Condition, $\beta = .11$, $t(134) = 1.34$, $p > .05$, were not significant. The

interaction effect of Self-control x Stress Condition was not significant, β = -.06, t(133) = -.04, p > .05. To view this in table form, please refer to Table 6.

Exploratory analysis

Impulsive Purchasing Items. The items were assessed individually. Analysis of the manipulation checks, showed that males (M = 2.49, SD = 1.17) were significantly more likely to like the backpack than females (M = 1.95, SD = .95), t(134) = 2.89, p=.01. Females were also found to be significantly more likely to own a wireless computer mouse, t(134) = -2.42, p = .02. For age, those who were younger were significantly more likely to: own a backpack (F(1, 135) = 12.07, p = .001), to like the lava lamp (F(1, 135) = 7.45, p = .007), and own the wireless computer mouse (F(1, 135) = 17.05, p < .001).

Three items were included in the demographic section to explore past impulsive purchasing decisions. The majority of participants buy unplanned items while shopping 1-2 times a month (44.5%). Majority of participants (58.4%) felt the think carefully before buying items from the store, and 65% of participants browsed items not on their list at the store. The times per month participants bought unplanned items was significantly predicted by their Self-control score, F(1, 135) = 4.09, β = .17, t(135) = 2.02, p = .05. Results indicate that females significantly differ than males in buying more unplanned items (Males M = 2.32, SD = .83; Females M = 2.82, SD = *.78*, t(134) = -3.65, p < .001), thinking less carefully before buying items (Males M = 3.89, SD = 1.05; Females M = 3.35, SD = *1.18*, t(134) = 2.77, p = .01), and browse more items not on their list (Males M = 3.44, SD = 1.18; Females M = 4.04, SD = .98, t(134) = -3.23, p = .002).

Discussion

After running four moderation regressions on the four impulsive purchasing items, no effect was found, demonstrating that there was no relationship between Self-control and the four impulsive purchasing items. Though there was no moderation, two main effects were found. It was found that those who had lower Self-control were willing to pay more for the backpack. There was also a main effect for the stress condition on expedited shipping for the wireless computer mouse. Analysis showed that those in the control condition were willing to pay more to get the computer mouse the next day.

After finding no moderation with the amount of money one was willing to spend, the likelihood of purchasing the item was analyzed. This showed that those in the high Self-control group were more likely to purchase the lava lamp. With the interaction added, this demonstrated that participants in the control group who exhibited high Self-control were the most likely to buy the lava lamp.

Both stress manipulations were found to be successful when compared to the control group. The stress manipulation paragraph was found to have a more stressful effect than the paragraph writing stress manipulation for both the control and stress condition participants. A gender difference was found based on participants stress level, with females being significantly more stressed then males for both manipulations. There were two gender differences when analyzing the items. Male participants were found to be more likely to purchase a backpack, while females were more likely to own a wireless computer mouse. It was also found that females were significantly more likely to buy unplanned items. Females were more likely to think less carefully before buying an item, as well as browsing items not on their shopping list.

General Discussion

After analysis of the Study 1 and the Pilot study data, no moderation was found to support either hypothesis one or two. Though no moderation was found, there was a main effect found for the backpack. The relationship showed that those with lower Self-control were more likely to pay more for the backpack, implying that those with lower Self-control were more impulsive in their purchasing behaviors. This supports previous findings that those who have less Self-control tend to make more impulsive decisions (Baumeister, 2002a). Unfortunately, there is no other research that examined this type of moderation effect, and we could not compare these results to other studies. More research is needed in this area.

A question that needs to be addressed is, why those in the control payed more for the items. This was found significant for the wireless computer mouse, but there was a trend for the other three items as well. Literature would indicate that the stressed group would pay more, implying more impulsive purchasing behaviors. However, the opposite was found with the control group engaged in more impulsive purchasing behaviors. There are two possible explanations. The first could be lack of examination of academic stress on impulsive purchasing behaviors. Academic stress has a different effect may have a different effect on impulsive purchasing than other stressors such as relationship based or finance related stressors. The second possibility is a confounding variable that was not considered or measured in the study.

On a positive note, the stress manipulation vignette was found to be successful in both the Pilot study and Study 1. Both the Pilot study and Study 1 showed the stress manipulation paragraph to be stressful and have a statistically significant difference

between the stress and control condition. Study 1 included having the participants writing a paragraph about stressful events in their lives. Though not as stressful as the stress manipulation paragraph, this writing task did show statistically significant differences between the stress and non-stress control conditions. Time of day the participants took the study may have been a factor. Ego depletion theory demonstrates that as the day goes on and participants use their Self-control, they have much less Self-control left at the end of the day (Baumeister, 2002a). However, Study1 showed that time of day did not significantly affect participants' Self-control scores. Therefore, it may be concluded that ego depletion was not a contributing factor in this study.

Limitations

There are several limitations that may have affected the results of the study. The first is sample size. The goal for this study was a minimum of 200. Due to time and resource constraints, there were only 137 cases left after data cleaning. There were relationships that were close to a significant level. With greater numbers, these relationships may have been significant. Another limitation may have been inadequate stress levels. Though the stress manipulation paragraph was stress inducing, it may not have had sufficient effect to get significant results.

Regarding the impulsive purchasing measures, no direct assessment of impulsive purchasing behaviors may have been a limitation. Our method may have been too artificial of an experience. When individuals go online to shop, they usually look for something they want. This study forced participants to pick prices on specific items that the researcher chose. This may not have been close enough to a real online shopping experience. There were limited product choices and previous research has shown, product

types can be a critical factor in consumer decisions. For example, had various food items been used in this study, results may have been different. In previous studies, food was effectively used in the examination of the influence of self-control and stress (van den Bos & de Ridder, 2006). This study could lack in generalizability. Since this research was done on college students and was catered to college students, it may not generalize to the general population.

Future Implications.

In future studies, it may be advisable to survey subjects to see what items they like and would show impulsive purchasing. One avenue to try is food products, as it has shown to be effective in measuring the extent of this behavior (Tinne, 2010). Future studies may want to address the effectiveness of the stress manipulation paragraph by comparing the stress manipulation vignette compares to other forms of stress inducing techniques.

Conclusion

A daily struggle that most individuals experience is getting out of the store or getting offline without purchasing items that they did not intend to buy or need. In most cases, this does not lead to serious negative consequences, but if this persists over time, the consequences can add up. For those who engage in consistent impulsive purchasing, there may be underlying traits and environmental events that trigger this behavior. This study examined the environmental event of academic stress and the personal traits of self-control and desire for control as contributing factors. Though this research did not establish a conclusive relationship between self-control, desire for control, stress and impulsive purchasing behaviors, it does suggest that there are other factors that influence

this behavior. This study brings us one step closer to finding the underlying causes of impulsive purchasing behaviors.

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Table 1

Description of the impulsive purchasing items

Items	Mean	SD	Range	Skewness	Kurtosis
Backpack	25.82	13.42	2-60	1.49	-.31
Blanket	13.93	10.19	1-45	3.34	1.68
Blender	31.28	20.33	5-80	1.59	-.71
Cards Against Humanities	11.33	8.35	0-25	.67	-1.73
Giant gummy bear	7.73	8.40	0-35	5.03	3.53
Lava Lamp	13.36	9.02	0-40	1.89	1.18
Popcorn Popper	17.49	9.13	0-45	1.08	1.43
Product Switch	3.60	2.31	1-7	.45	-2.48
Magnetic Putty	6.9	6.77	0-25	3.56	1.61
Thermos	13.74	9.76	0-40	2.37	.36
Wireless Computer Mouse	14.79	9.57	2-41	2.25	.23

Table 2

Tests of main effects and moderation for pilot data

Item	R^2	*F*	*df*	*p*	*t*	β
Backpack	.16	1.20	(6, 37)	.33		
-SC			37	.99	-.01	-.01
-DC			37	.73	-.35	-.43
-Stress			37	.20	1.30	1.85
-SC x DC			37	.69	.40	.80
-SC x Stress			37	.46	-.74	-.89
-DC x Stress			37	.40	-.86	-.95
Blanket	.09	.62	(6, 37)	.71		
-SC			37	.71	.37	.45
-DC			37	.94	-.08	-.10
-Stress			37	.96	.05	.08
-SC x DC			37	.97	-.03	-.07
-SC x Stress			37	.34	-.97	-1.22
-DC x Stress			37	.36	.92	1.07
Blender	.18	1.18	(6, 32)	.34		
-SC			32	.57	-.57	-.70
-DC			32	.39	-.87	-1.13
-Stress			32	.94	.08	.13
-SC x DC			32	.41	.83	1.69
-SC x Stress			32	.47	-.74	-.94
-DC x Stress			32	.43	.80	.97
Cards Against Humanities	.11	.65	(6, 32)	.69		
-SC			32	.76	-.30	-.39
-DC			32	.59	-.55	-.75
-Stress			32	.87	.16	.28
-SC x DC			32	.77	.30	.64
-SC x Stress			32	.57	-.57	-.75
-DC x Stress			32	.55	.60	.76
Giant gummy bear	.06	.403	(6, 37)	.87		
-SC			37	.87	.17	.21
-DC			37	.87	-.17	-.22
-Stress			37	.87	.16	.24
-SC x DC			37	.99	.01	.01
-SC x Stress			37	.68	-.42	-53
-DC x Stress			37	.91	.12	.14

Lava Lamp	.01	.78	(6, 37)	.59		
-SC			37	.73	.34	.42
-DC			37	.91	.11	.14
-Stress			37	.08	1.77	2.61
-SC x DC			37	.98	-.03	-.06
-SC x Stress			37	.09	-1.76	-2.19
-DC x Stress			37	.68	-.41	-.47
Popcorn Popper	.16	1.14	(6, 37)	.36		
-SC			37	.11	-1.67	-1.97
-DC			37	.09	-1.76	-2.22
-Stress			37	.85	.20	.28
-SC x DC			37	.10	1.69	3.38
-SC x Stress			37	.54	.62	.75
-DC x Stress			37	.43	-.81	-.90
Product Switch	.03	.23	(6, 43)	.97		
-SC			37	.69	-.40	-.47
-DC			37	.50	-.69	-.90
-Stress			37	.82	.23	.33
-SC x DC			37	.56	.58	1.15
-SC x Stress			37	.53	-.63	-.77
-DC x Stress			37	.71	.38	.40
Magnetic Putty	.13	.80	(6, 32)	.58		
-SC			32	.46	-.74	-.93
-DC			32	.23	-1.21	-1.62
-Stress			32	.97	-.04	-.06
-SC x DC			32	.39	.87	1.84
-SC x Stress			32	.29	-1.09	-1.42
-DC x Stress			32	.19	1.33	1.67
Thermos	.13	.80	(6, 32)	.58		
-SC			32	.80	-.25	-32
-DC			32	.43	-.80	-1.07
-Stress			32	.53	-.63	-1.05
-SC x DC			32	.70	.38	.81
-SC x Stress			32	.99	-.02	-.02
-DC x Stress			32	.35	.94	1.18
Wireless Computer Mouse	.15	.93	(6, 32)	.49		
-SC			32	.75	.32	.40
-DC			32	.94	-.08	-.11
-Stress			32	.77	-.30	-.50
-SC x DC			32	.91	-.11	-.23
-SC x Stress			32	.85	.19	.24

-DC x stress	32	.70	.38	.48

Table 3

Description of variables used in main analysis for Study 1

Variable	Mean	Std. Deviation	Skewness	Kurtosis	Min	Max
Backpack	22.47	9.91	.79	-.32	0	50
Lava Lamp	7.07	6.93	3.37	-.57	0	25
Wireless Mouse	13.06	11.19	5.31	2.08	0	40
Card Game	9.04	9.30	6.62	4.32	0	40
Self-Control	108.69	6.99	-0.82	-0.44	88	125

Table 4

Second stress manipulation analysis

Breakdown of stressors for college students

Main Category	Subcategories
Family	Children, husband/wife, family illness, living away from family, family in accidents, family mental illness and parents
School	Deadlines, homework, grades, tests, sports, missed assignments/classes, unknown/change in major, college applications, extracurricular activities, scholarships, transferring, competitive programs, academic probation, procrastination, fraternity/sorority, being an international student.
Life changes	Moving, divorce, new job/promotion, deployment, strained relationships, living on own for first time, breakup, and failure.
Work	Too many hours, short-handed, fired, and missed work.
Unforeseen circumstances	Family passing away, car accidents, pets passing away, family in prison, and banking errors.
Money	Not have enough, loans, and credit cards.
Other	Medical and mental illness and having too much on their plate at once.

Table 5

Moderation for price assignment and expedited shipping in Study 1

Item	R^2	*F*	*df*	*p*	*t*	β
Backpack	.06	2.29	(3, 133)	.04		
-SC			134	.01	-2.54	-.21
-Stress			134	.39	-.87	-.07
-SC x Stress			133	.25	-1.16	-.15
Lava Lamp	.04	1.73	(3, 133)	.17		
-SC			134	.36	.91	.08
-Stress			134	.17	-1.39	-.12
-SC x Stress			133	.12	-1.56	-.20
Wireless Mouse	.07	3.25	(3, 133)	.02		
-SC			134	.30	1.05	.09
-Stress			134	.004	-2.95	-.25
-SC x Stress			133	.76	-.30	-.04
Cards Against Humanities	.02	.68	(3, 133)	.57		
-SC			134	.16	-1.41	-.12
-Stress			134	.83	-.22	-.02
-SC x Stress			133	.89	.14	.02

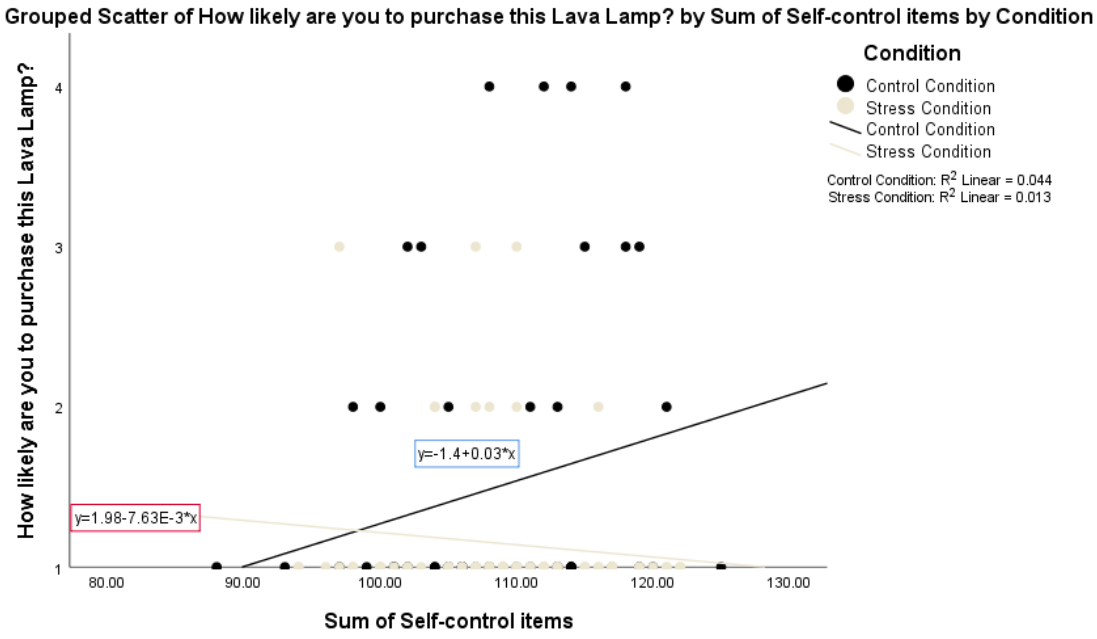
Table 6

Moderation for likelihood of purchasing an item for Study 1

Item	R^2	*F*	*df*	*p*	*t*	β
Backpack	.02	.98	(3, 133)	.40		
-SC			134	.57	-1.00	-.09
-Stress			134	.57	-.57	-.05
-SC x Stress			133	.21	-1.26	-1.68
Lava Lamp	.09	4.59	(3, 133)	.01		
-SC			134	.37	.89	.07
-Stress			134	.004	-2.95	-.25
-SC x Stress			133	.04	-2.04	-2.62
Wireless Mouse	.03	1.17	(3, 133)	.32		
-SC			134	.50	-.68	-.06
-Stress			134	.63	.49	.04
-SC x Stress			133	.10	1.68	2.23
Cards Against Humanities	.01	.60	(3, 133)	.61		
-SC			134	.90	.12	.01
-Stress			134	.18	1.34	.11
-SC x Stress			133	.97	-.04	-.06

Figure 1

Stress moderation on self-control's effect on likelihood of purchasing the lava lamp.



Appendix A

Demographic Questions

*Please select your gender. A. male B. female C. other, please specify

*Please select your ethnicity **A**. African-American **B**. Asian **C**. White Caucasian **D**. Hispanic or Latino/a **E.** American Indian/Alaskan Native **F.** Middle Eastern **G.** Other

*Please enter your age below: _____

*How many times in a month do you buy an item that was unplanned?

A.None B.1-2 times C.3-4 times D.5+ times

Strongly Disagree Strongly Agree

*I think carefully before I buy items from the store. 1------2------3------4------5

Strongly Disagree Strongly Agree

*I browse items in the store that are not on my list. 1------2------3------4------5

*Are you a college student?

A. Yes B. No

Appendix B

Stress Manipulation Vignette

You are attending Fort Hays State University as an undergraduate. You have a scholarship that pays half of your tuition cost. To keep this scholarship, you must maintain a 3.5 GPA. You have been working hard on maintaining this grade point average while working an on-campus job for financial support. On top of this you are currently the vice president of an on-campus club. Midterms are coming up in a week and your homework load has increased. Your grades have started to slip because you procrastinated and it is now near impossible to finish all your assignments with good grades. Your performance as the vice president has also decreased and you are letting your club down. Your grade point average is already teetering on a 3.5. Any bad grade for a class will cause your grade point average to drop, and you will lose the scholarship. You cannot afford to go to college without the scholarship, and you are only a little over a year away from graduating. Without that scholarship, you cannot afford to finish the last year of college needed for your degree. You also cannot quit your on-campus job, as you will have no money for food, or money for books for next semester. You consider quitting the club, but you do not want to let them down. Your car has recently broken down and you have no way to get to school, and cannot afford to fix it. You miss the big midterm test in your first class of the day. Your grade has dropped to a D in that class, and you have no idea how to make up your grade to keep your scholarship. You have no idea what to do.

Appendix C

Non-Stress Manipulation Vignette

You are attending Fort Hays State University as an undergraduate. You have a scholarship that pays half of your tuition cost. To keep this scholarship, you must maintain a 3.5 GPA. You have been working hard on maintaining this grade point average while working an on-campus job for financial support. On top of this you are currently the vice president of an on-campus club. Midterms are coming up in a week and you are doing well with your homework load. Your grades are stable because you did a good job prioritizing assignments, so now it is possible to finish all your assignments with good grades. Your performance as the vice president has also been going well and you are lifting the club up with your good leadership. Your grade point average is above a 3.5. Your good grades for your classes are keeping your grade point average good, and you are able to maintain your scholarship. Even if you lost your scholarship, you can afford to go to college without the scholarship. You are only a little over a year away from graduating and are very close to finishing the last year of college needed for your degree. Your on-campus job is doing well and is helping you pay for food and books for next semester. You are being considered as the president for your club next year. Your car has recently been fixed and is doing a good job getting you to school. You make it to the big midterm test in your first class of the day. Your grade has improved from your good grade on the test. You are excited for next semester.

Appendix D

Stress Manipulation Task

Please write at least a paragraph about past events or situations from your life that you found stressing.

Appendix E

Control Task

Please write at least a paragraph about your day yesterday.

Appendix F

Stress Manipulation Check

How stressed did this make you?

Very Stressed Stressed Neutral Not Stressed Not Very Stressed

1----------2----------3----------4----------5

Appendix G

Self-Control Scale

Using the scale provided, please indicate how much each of the following statements reflects how you typically are. Not at all

Very much

1. I am good at resisting temptation. 1———2———3———4———5

2. I have a hard time breaking bad habits. 1———2———3———4———5

3. I am lazy. 1———2———3———4———5

4. I say inappropriate things. 1———2———3———4———5

5. I never allow myself to lose control. 1———2———3———4———5

6. I do certain things that are bad for me,

if they are fun. 1———2———3———4———5

7. People can count on me to keep on schedule. 1———2———3———4———5

8. Getting up in the morning is hard for me. 1———2———3———4———5

9. I have trouble saying no. 1———2———3———4———5

10. I change my mind fairly often. 1———2———3———4———5

11. I blurt out whatever is on my mind. 1———2———3———4———5

12. People would describe me as impulsive. 1———2———3———4———5

13. I refuse things that are bad for me. 1———2———3———4———5

14. I spend too much money. 1———2———3———4———5

15. I keep everything neat. 1———2———3———4———5

16. I am self-indulgent at times. 1———2———3———4———5

17. I wish I had more self-discipline. 1———2———3———4———5

18 I am reliable. 1———2———3———4———5

19. I get carried away by my feelings. 1———2———3———4———5

20. I do many things on the spur of the moment. 1———2———3———4———5

21. I don't keep secrets very well. 1———2———3———4———5

22. People would say that I have iron self- discipline. 1———2———3———4———5

23. I have worked or studied all night at the last minute. 1———2———3———4———5

24. I'm not easily discouraged. 1———2———3———4———5

25. I'd be better off if I stopped to think before acting. 1———2———3———4———5

26. I engage in healthy practices. 1———2———3———4———5

27. I eat healthy foods. 1———2———3———4———5

28. Pleasure and fun sometimes keep me
from getting work done. 1———2———3———4———5

29. I have trouble concentrating. 1———2———3———4———5

30. I am able to work effectively toward long-term
goals. 1———2———3———4———5

31. Sometimes I can't stop myself from
doing something, even if I know it is wrong. 1———2———3———4———5

32. I often act without thinking through all the
alternatives. 1———2———3———4———5

33. I lose my temper too easily. 1———2———3———4———5

34 I often interrupt people. 1———2———3———4———5

35. I sometimes drink or use drugs to excess. 1———2———3———4———5

36. I am always on time. 1———2———3———4———5

Items 2, 3, 4, 6, 8, 9, 10, 11, 12, 14, 16, 17, 19, 20, 21, 23, 25, 28, 29, 31, 32, 33, 34, and 35 are reversed coded.

Appendix H

The Desirability of Control Scale

Below you will find a series of statements. Please read each statement carefully and respond to it by expressing the extent to which you believe the statement applies to you. For all items a response from 1 to 7 is required. Use the number that best reflects your belief when the scale is defined as follows: 1. The statement doesn't apply to me at all. 2. The statement usually doesn't apply to me. 3. Most often, the statement does not apply. 4. I am unsure about whether or not the statement applies to me, or it applies to me about half the time. 5. The statement applies more often than not. 6. The statement usually applies to me. 7. The statement always applies to me. It is important that you respond to all items.

1. I prefer a job where I have a lot of control over what I do and when I do it. 1—2—3—4—5—6—7

2. I enjoy political participation because I want to have as much of a say in running government as possible. 1—2—3—4—5—6—7

3. I try to avoid situations where someone else tells me what to do. 1—2—3—4—5—6—7

4. I would prefer to be a leader rather than a follower. 1—2—3—4—5—6—7

5. I enjoy being able to influence the actions of others. 1—2—3—4—5—6—7

6. I am careful to check everything on an automobile before I leave for a long trip. 1—2—3—4—5—6—7

7. Others usually know what is best for me. 1—2—3—4—5—6—7

8. I enjoy making my own decisions. 1—2—3—4—5—6—7

9. I enjoy having control over my own destiny. 1—2—3—4—5—6—7

10. I would rather someone else took over the 1—2—3—4—5—6—7
leadership role when I'm involved in a group project.

11. I consider myself to be generally more 1—2—3—4—5—6—7
capable of handling situations than other are.

12. I'd rather run my own business and make my 1—2—3—4—5—6—7
own mistakes than listen to someone else's orders.

13. I like to get a good idea of what a 1—2—3—4—5—6—7
job is all about before I begin.

14. When I see a problem I prefer to do something 1—2—3—4—5—6—7
about it rather than sit by and let it continue.

15. When it comes to orders, I would 1—2—3—4—5—6—7
rather give them than receive them.

16. I wish I could push many of life's daily 1—2—3—4—5—6—7
decisions off on someone else.

17. When driving, I try to avoid putting myself in a 1—2—3—4—5—6—7
situation where I could be hurt by someone else's mistake.

18. I prefer to avoid situations where someone 1—2—3—4—5—6—7
else has to tell me what it is I should be doing.

19. There are many situations in which I would 1—2—3—4—5—6—7
prefer only one choice rather than having to make a decision.

20. I like to wait and see if someone else is going 1—2—3—4—5—6—7
to solve a problem so that I don't have to be bothered by it.

Items 7, 10, 16, 19, and 20 are reversed scored.

Appendix I

Impulsive Purchasing Measures

This survey will consist of 13 shopping items.

1. Backpack: 

5. Popcorn Popper: 

2. Blanket: 

6. Magnetic Putty: 

3. Giant Gummy Bear: 

7. Blender: 

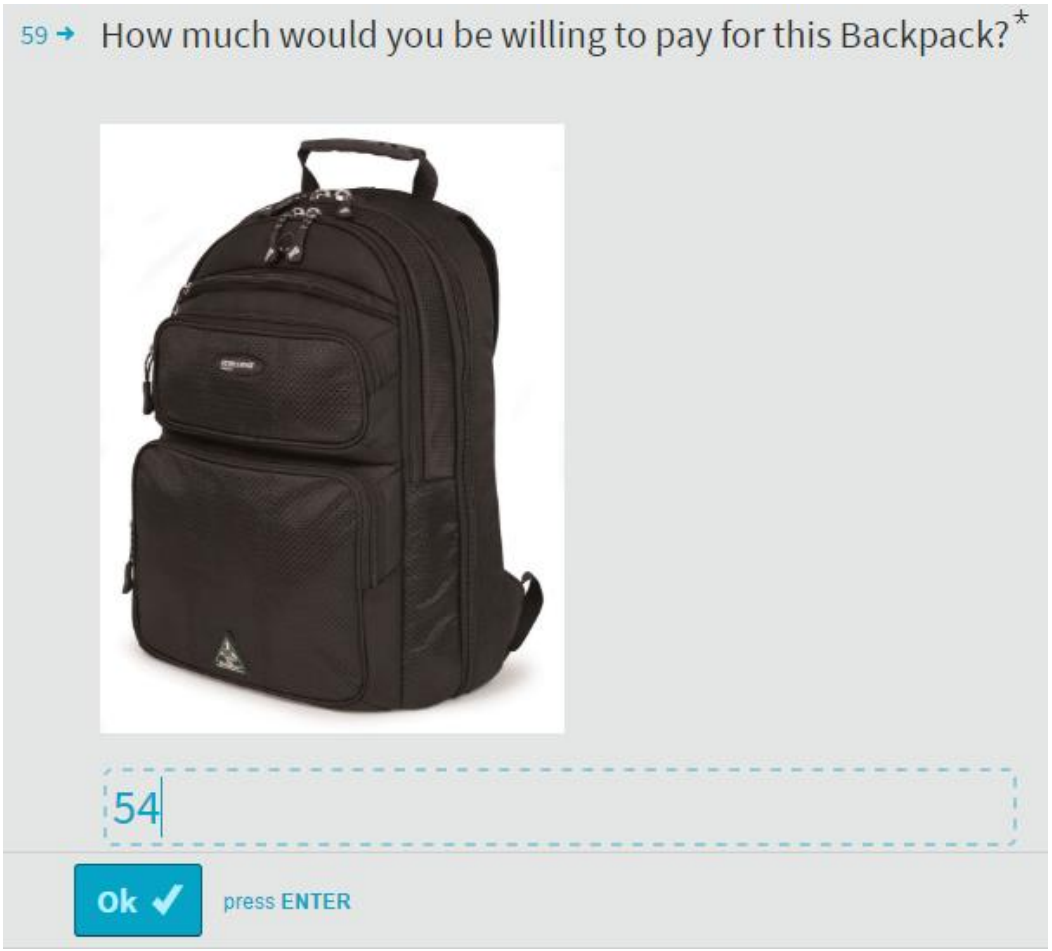
4. Lava Lamp:  8. Wireless Computer Mouse: 

9. Cards Against Humanities Card Game: 

10. Hoodie:  11. Thermos: 

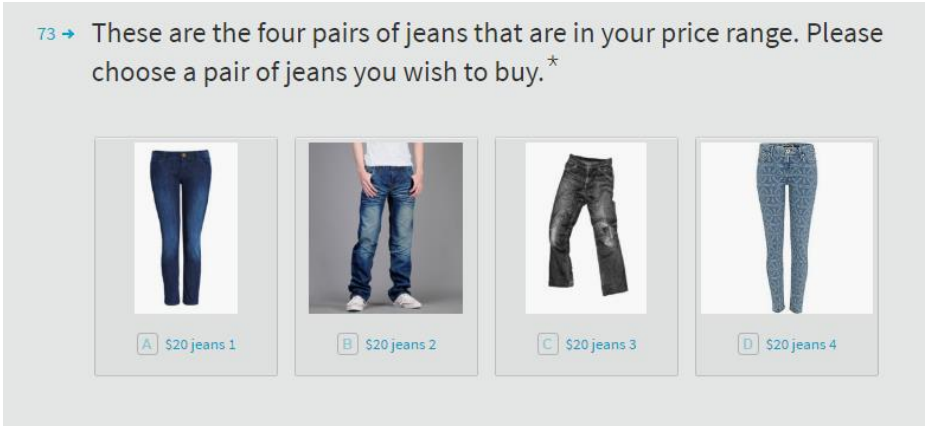
12. Shoes:  13. Gloves: 

Price Assignment: Participants will be asked how much they are willing to pay for the item shown. This applies to items 1, 2, 3, 4, and 5 shown above.

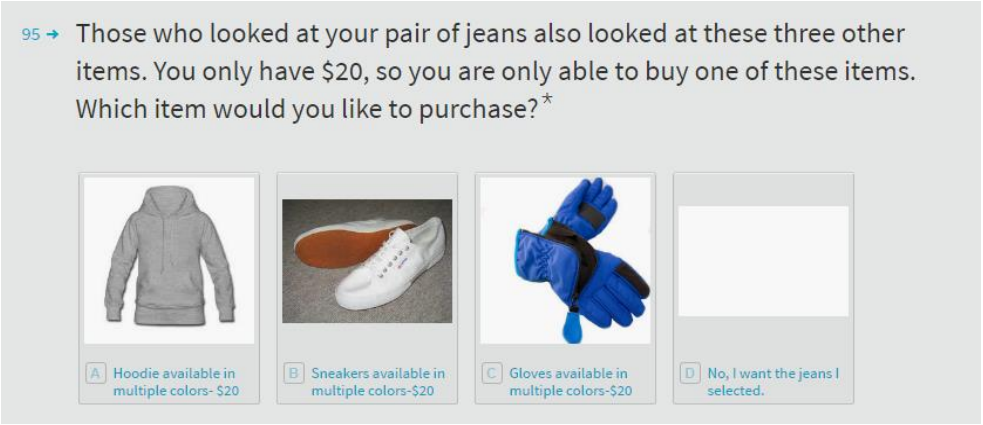


Online Shopping Simulation Task:

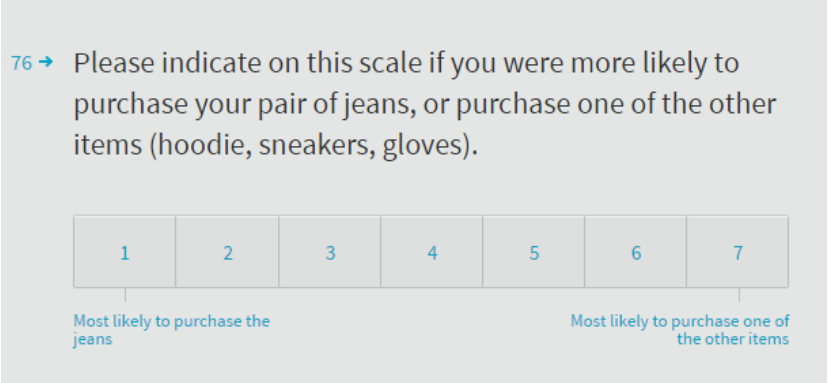
Participants will be shown four pairs of jeans and asked to choose one.



Participants will then choose between their jeans and three other items.



Participants will then answer this scale question.



Expedited Shipping: Participants will be asked the amount they are willing to pay to get items the next day. This applies to items 6, 7, 8, 9, 11.

83 → How much money would you be willing to pay to be shipped this blender tomorrow?*

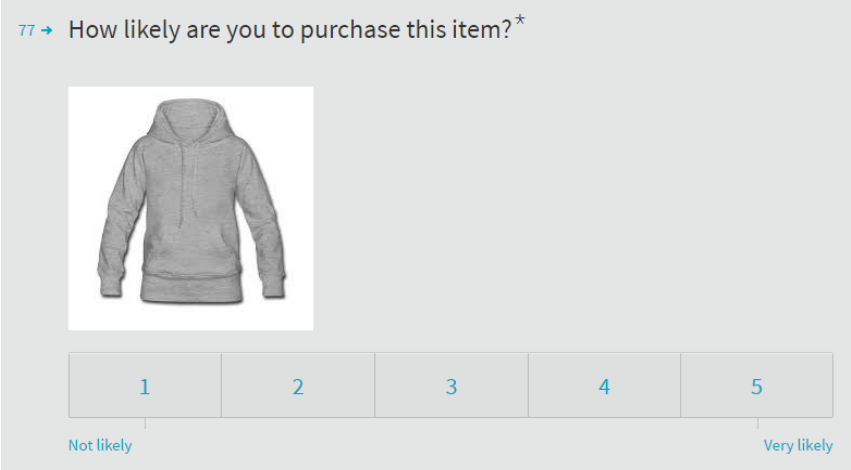
20

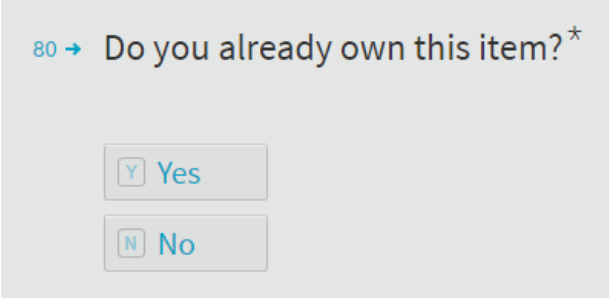
Ok ✓ press ENTER

Appendix J

Impulsive Purchasing Manipulation Checks

Manipulation checks: For the first two manipulation checks, this applies to all 13 items. The last manipulation check only applies to items in which the participant answered 1 or 2 on the first manipulation check.





Appendix K

IRB Exemption Letter

FORT HAYS STATE UNIVERSITY

Forward thinking. World ready.

OFFICE OF SCHOLARSHIP AND SPONSORED PROJECTS

DATE:	December 8, 2016
TO:	Katelynn Reed
FROM:	Fort Hays State University IRB
STUDY TITLE:	[983909-1] The Moderating Effects of Stress on the Relationship between Self-control, and Desire for Control, on Impulsive Purchasing
IRB REFERENCE #:	17-061
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	December 8, 2016
REVIEW CATEGORY:	Exemption category # 2

Thank you for your submission of New Project materials for this research study. The departmental human subjects research committee and/or the Fort Hays State University IRB/IRB Administrator has determined that this project is EXEMPT FROM IRB REVIEW according to federal regulations.

Please note that any changes to this study may result in a change in exempt status. Any changes must be submitted to the IRB for review prior to implementation. In the event of a change, please follow the instructions for Revisions at http://www.fhsu.edu/academic/gradschl/irb/.

The IRB administrator should be notified of adverse events or circumstances that meet the definition of unanticipated problems involving risks to subjects. See http://www.hhs.gov/ohrp/policy/AdvEvntGuid.htm.

We will put a copy of this correspondence on file in our office. Exempt studies are not subject to continuing review.

If you have any questions, please contact Leslie Paige at lpaige@fhsu.edu or 785-628-4349. Please include your study title and reference number in all correspondence with this office.