PREDICTING COMPENSATORY HEALTH BELIEFS FROM IMPULSIVENESS AND TIME PERSPECTIVE

by

Demie L. Derry

An Abstract
of a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in the Department of Psychological Science University of Central Missouri

April, 2017
ABSTRACT

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Previous research suggests a relationship between impulsiveness and health behavior, time perspective and health behavior, compensatory health beliefs (CHB) and health behavior, as well as CHB and impulsiveness. However, previous research has not evaluated these three variables together. The present study examined the predictive ability that time perspective and impulsiveness have for predicting CHB, in addition to the relationships among all three variables. College students \((N=165)\) voluntarily participated in the study through an online research participant management system. Participants completed the Barratt Impulsiveness Scale-11, Zimbardo Time Perspective Inventory (ZTPI), Compensatory Health Beliefs Scale, as well as demographic questions. It was hypothesized that impulsiveness and time perspective scores together would more accurately predict usage of CHB than both variables alone, and that impulsiveness and all five time perspectives would be correlated with CHB. Present-fatalistic time perspective was the only significant predictor of CHB.
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CHAPTER 1
NATURE AND SCOPE OF THE STUDY

The present study investigated the relationships of impulsiveness and time perspective with compensatory health beliefs (CHBs). Impulsiveness is a personality trait that consists of acting without thinking, making quick cognitive decisions, and having a present time orientation (Patton, Stanford, & Barratt, 1995). Impulsiveness has been associated with the increased likelihood of engaging in unhealthy behavior (Braddock et al., 2011). Time perspective refers to the specific time orientation an individual adopts (Zimbardo & Boyd, 1999). Some individuals choose to focus on the future while others live in the past, and some orient themselves in the present. Time perspective influences health behavior in various ways. Future oriented individuals can make healthy decisions now, as they look to their future health. However, present oriented individuals may have a harder time making healthy decisions for their future, as their tendency is to live in the present. Finally, compensatory health beliefs are ways that individuals rationalize engaging in unhealthy behavior (Knauper, Rabiau, Cohen, & Patriciu, 2004). CHB may hinder individuals from attaining health goals and ultimately achieving a healthy lifestyle.

Previous research has identified a relationship between impulsiveness and health behaviors (Bongers et al., 2015; Guerrieri, Nederkoorn, & Jansen, 2008; Henson, Carey, Carey, & Maisto, 2006; Melanko & Larkin, 2013) as well as time perspective and health behaviors (Adams & White, 2009; Berli, Loretini, Radtke, Hornung, & Scholz, 2014; Guthrie, Butler, Lessl, Ochi, & Ward, 2014; Sansone et al., 2013) and CHBs and health behaviors (Knauper et al., 2004; Monson, Knauper, & Knonick, 2008; Rabiau, Knauper, & Miquelon, 2006; Sleigh & Westmoreland, 2014). The results suggest that these three factors may influence overall health
in a multitude of ways. However, no previous research has examined the three variables together.

Current health statistics in the United States remain alarming despite efforts to improve the situation. Much of the health burden of the U.S. could be prevented or delayed through improved nutrition, increased physical activity, and avoidance of tobacco use (CDC, 2014). The present study further adds to the existing literature by providing a more thorough understanding of plausible factors related to overall health in the U.S. by the evaluation of time perspective along with impulsiveness in regards to CHB.

The present study used a correlational design with six predictor variables and one outcome variable to assess the relationships that impulsiveness and time perspective have with CHB. Impulsiveness and five time perspectives were used as the predictor variables and CHB was the outcome variable. Participants included college students who volunteered for the study through an online research participant management system. Participants completed the Barratt Impulsiveness Scale-11 (see Appendix A), Zimbardo Time Perspective Inventory (see Appendix B), Compensatory Health Beliefs Scale (see Appendix C), and demographic questions (see Appendix D). After assessing for multicollinearity using a Pearson product-moment correlation, a hierarchical multiple regression was used to test the hypotheses. Overall, it was hypothesized that impulsiveness scores would be positively correlated with CHB scores, time perspective scores would predict CHB scores depending on the perspective, and impulsiveness and time perspective together would predict usage of CHB more accurately than either variable alone. Results provided support of the predictive ability of present-fatalistic time perspective for CHB, but no other time perspective scores were significantly correlated with CHB. Impulsiveness did not predict CHB over and above the variance that was explained by the time perspectives.
Currently in the U.S., 7 of the 10 leading causes of death are chronic diseases; these are common, costly, and preventable conditions (CDC, 2014). Every hour in the U.S., about 83 Americans die from heart disease and stroke, and it is likely that more than a quarter of those deaths could have been prevented or delayed. Specifically, 34% of deaths caused by heart disease, and 33% of deaths caused by strokes may have been prevented or delayed through changes in health habits. Smoking is the number one leading cause of preventable disease and death in the U.S. and is responsible for about 1 in every 5 deaths. By the year 2020, the expected cost of medical care for adults with chronic obstructive pulmonary disease (COPD) will be more than ninety billion dollars.

The U.S. falls short on healthy physical activity and dietary consumption levels, with more than a third of adults being obese. Obesity costs the U.S. about $147 billion in medical expenses each year (CDC, 2014). Obese individuals are at risk for many of the leading causes of death including heart disease, stroke, some types of cancer, respiratory diseases, diabetes, and kidney disease. The typical eating patterns of adults in the U.S. do not align with the dietary guidelines and recommendations of the Office of Disease Prevention and Health Promotion (ODPHP, 2015). Most Americans exceed the recommendations for added sugars, saturated fats, and sodium but neglect to meet the recommendations for vegetables, fruits, dairy, and oils. On average, adults are consuming far too many calories which is evident in the high percentage of overweight and obese individuals. With regards to physical activity, only about 21% of adults meet the physical activity guidelines of the Centers for Disease Control and Prevention (CDC, 2014). In general, physical inactivity is associated with a realm of health problems including the risk of developing chronic diseases. Thus, the current levels of physical activity are problematic.
With these alarming statistics hanging over the U.S., it is important to explore plausible factors related to this health epidemic. How individuals act on impulsive tendencies, view time, and rationalize unhealthy behaviors are possible contributors to the problem. Specifically, impulsiveness, time perspective, and CHB may be tied to the current health status of the United States.

**Impulsiveness**

Impulsiveness is a multidimensional construct that is an essential element of personality (Vasconcelos, Malloy-Diniz, & Correa, 2012). According to Patton et al. (1995), impulsiveness consists of three key subtraits: motor, cognitive, and nonplanning. These subtraits combine to form an overall definition of impulsiveness as acting without thinking, making quick cognitive decisions, and having a present time orientation (Patton et al., 1995).

Every day individuals engage in behavior that will result in short- and long-term consequences in relation to health (Melanko & Larkin, 2013). The reinforcement associated with engaging in healthy behaviors is often delayed by several months or even years, which may contribute to an increased preference for engaging in unhealthy behaviors that are associated with immediate reinforcement. Individuals may choose to smoke cigarettes and fail to be influenced by the known long-term consequences of participating in this behavior, such as emphysema and lung cancer. Instead of engaging in a regular exercise routine, individuals may procrastinate their workouts and choose to live a sedentary lifestyle despite the abundance of risks associated with remaining inactive.

It is an impulsive choice when individuals choose to partake in poor current health habits that sacrifice long-term positive health outcomes (Melanko & Larkin, 2013). These impulsive choices have an enormous impact on overall health, and play a significant role in 7 of the 10
leading causes of death today. Individuals who are more impulsive tend to engage in fewer healthy behaviors; therefore, it can be concluded that less impulsive individuals tend to have better health behavior (Melanko & Larkin, 2013). Specific health behaviors associated with impulsivity include obesity, risky health behaviors, substance use, and stress.

The current obesity epidemic generates social and psychological problems as well as increased health costs (Guerrieri et al., 2008). It is apparent that something must be done to mediate these negative effects, or reverse them if at all possible. Obesity is caused by chronic weight gain, and the formula for this is quite simple. Weight gain is caused by a positive energy balance, meaning more calories are consumed than burned off. Therefore, weight loss can be achieved by the opposite: burning more calories than are consumed. Despite the understanding of this simple formula, some individuals have great difficulty achieving and maintaining a healthy weight.

It is worth noting that not all individuals who are faced with an abundance of food become overweight or obese. This is where personality traits such as impulsiveness come into play, as well as environmental, social, cultural, and other psychological factors. Impulsiveness plays a role in the dilemma of overeating, which can lead to weight gain and obesity. Bongers et al. (2015) discovered that obese individuals with an impulsive personality tend to detect high-calorie foods more quickly. High-impulsive participants with obesity were significantly faster than high-impulsive healthy-weight participants at detecting high-caloric food items among neutral items. The results of this study suggest that speeded detection could be related to increased food cravings and ultimately an increased risk of overeating. In the obesogenic environment of today, not being able to restrain oneself and one’s responses significantly contributes to this problem that has turned into an epidemic (Guerrieri et al., 2008).
Consider lacking the ability to plan meals and having difficulty sticking to the intention of eating healthy. This is one example of how impulsivity contributes to weight gain and obesity. Research involving obese populations has indicated heightened impulsivity and specifically within the obese population, as obesity increases so does impulsiveness (Guerrieri et al., 2008).

Personality factors may provoke individuals to make decisions that involve risky health behaviors (Braddock et al., 2011). Impulsiveness is one personality factor that is correlated with risky health behavior, specifically tobacco use, alcohol consumption, drug use, risky sexual behavior, and safety behaviors. Loree, Lundahl, and Ledgerwood (2015) found that impulsiveness is a key predictor of substance use treatment outcomes. Impulsiveness is also associated with a higher risk of relapse and a general risk indicator for initiating and continuing drug use.

Stress is the general response to something that is perceived as threatening or alarming and can be external or internal (Fields, Lange, Ramos, Thamotharan, & Rassu, 2014). In stressful situations, individuals may more frequently choose to disregard future health for immediate reinforcement found with unhealthy behaviors. Greater levels of stress are associated with higher levels of impulsivity, specifically delaying healthy behaviors (Fields et al., 2014). When individuals undergo stress, they appear to shift to a more immediate reinforcement mindset, which explains impulsive behavioral tendencies (Fields et al., 2014). This tendency may be magnified for individuals who engage in negative coping strategies such as avoidance. It can be concluded from the research reviewed above that there are various negative health implications for impulsive individuals.
Time Perspective

Time perspective is an often non-conscious process that helps give meaning, order, and consistency to individuals’ lives (Zimbardo & Boyd, 1999). Individuals tend to have a temporal bias and predominantly favor one specific time perspective. However, although one specific time perspective is usually favored, it is possible for individuals to obtain differing perspectives depending on the situation and specific area of their life. This is why time perspective is ultimately recognized as a multidimensional construct (Guthrie et al., 2014; Zimbardo & Boyd, 1999). Why do some individuals focus primarily on the future while others are fixated on the past or present? Time perspective is influenced by multiple determinants such as culture, education, religion, social class, and family (Zimbardo & Boyd, 1999). The time perspective orientation that an individual adopts becomes a characteristic of that individual and influences the person’s reactions to various situations.

Time perspective influences judgments, decisions, and actions. However, individuals may be relatively unaware of this powerful influence. Zimbardo and Boyd (1999) postulated five distinct time perspective orientations: present-hedonistic, present-fatalistic, future, past-negative, and past-positive. Present-hedonistic focuses on pleasure and indicates a risk-taking attitude with little concern for the future. Present-fatalistic is characterized by a helpless and hopeless attitude toward the future and life in general. The future time perspective emulates a general orientation toward the future along with considerations of the future. Finally, past-negative envisions a harsh view of the past while past-positive portrays a warm and sentimental attitude regarding the past.

Health education and health promotion are recognizably future oriented disciplines with the idea that early and consistent practice of healthy behaviors will ultimately promote
prevention of disease, longevity, and quality of life (Guthrie et al., 2014). Therefore, time perspective has been associated with having an impact on health behavior in a variety of ways. Sansone et al. (2013) explored the connection time perspective has with the likelihood of becoming a smoker or non-smoker across five countries by analyzing data from the International Tobacco Control Surveys. Individuals who were more future-oriented were less likely to be smokers. These findings support time perspective as a predictor of smoking status and suggest the value of future-oriented smoking interventions.

Adams and White (2009) explored the role that time perspective has in relation to socioeconomic inequalities and lifestyle variables. Specifically, the mediating role time perspective has in smoking behavior and body mass index (BMI) was further examined. In general, results indicated that a lower BMI was associated with more consideration of future consequences. The results of this study provide further support for the possibility that individuals living in lower socioeconomic conditions have unique challenges that promote them to think about the future less compared to others in much higher socioeconomic conditions. There may be a relationship between having a higher BMI and thinking about the future less. Sociocultural factors may also play a role in these conditions.

Guthrie et al. (2014) found that age mediates the effect that time perspective has on health behavior by examining time perspective and associations with exercise, obesity, and smoking in different age groups. The strongest relationship between time perspective and health behavior was found in the youngest age group (18-to 24-year-olds) while no relationship was found in subsequent age groups. Hamilton, Kives, Micevski, and Grace (2003) further examined the impact that age has on the relationship between time perspective and health behavior. Data were collected from coronary heart disease patients in cardiac rehab. Results contradicted
previous research conducted with younger samples by finding a correlation between present-hedonistic time perspective and health responsibility. Individuals who are younger have much more of their lives to live and many decisions to make, which is why consideration of future consequences is important. However, for individuals who are older, mortality is more salient; therefore, these individuals may benefit from focusing on present satisfaction and pleasure (Guthrie et al., 2014).

Henson et al. (2006) examined health behaviors and time perspective in college students. Health-related risk behaviors were defined as actions that may result in immediate or long-term negative health consequences and health-related protective behaviors as actions that are taken to maintain or improve health. The future, hedonistic, and fatalistic subscales of the ZTPI were measured as well as an assessment of health behaviors including alcohol, drug, tobacco, seatbelt use, sex behaviors, and exercise. Henson et al. 2006 found that a future time perspective was more associated with increased protective behaviors and less with risk behaviors, while present-hedonistic time perspective was related to risk behaviors such as drinking, drug use, smoking, and sexual behavior. Previous research suggests that time perspective plays an important role in many health behaviors (Adams & White, 2009; Guthrie et al., 2014; Hamilton et al., 2003; Henson et al., 2006; Sansone et al., 2013; Zimbardo & Boyd, 1999).

Compensatory Health Beliefs

Both impulsiveness and time perspective have been identified as plausible characteristics of personality that influence health behavior. However, the impact that health beliefs have on health behavior must also be examined. CHB are beliefs that the negative effects of an unhealthy behavior can be compensated for by engaging in a healthy behavior (Knauper et al., 2004; Rabiau et al., 2006; Taut & Baban, 2008; Sleigh & Westmoreland, 2014). CHBs can be
activated in anticipation of fulfilling a desire or after fulfilling a desire (Knauper et al., 2004). Choosing to eat a piece of cake because the individual plans to go to the gym later is an example of a CHB (Knauper et al., 2004; Rabiau et al., 2006).

Rabiau et al. (2006) developed the CHB model. This model attempts to explain why individuals develop CHBs, how they initiate them, and their ability to predict health choices and future health outcomes. Cognitive dissonance arises when individuals wish to engage in an unhealthy behavior that conflicts with their health goals (Rabiau et al., 2006; Taut & Baban, 2008). This conflict arises because individuals believe that fulfilling a desire will damage their health goals (Monson et al., 2008; Rabiau et al., 2006). Individuals can reduce the cognitive dissonance by choosing among three strategies: resist the desire, adapt risk perception, or activate CHBs (Rabiau et al., 2006).

The first strategy consists of refraining from fulfillment of the desire, choosing to not eat the cake (Rabiau et al., 2006). The second strategy involves changing the individual’s perception of the unhealthy behavior, thinking that the cake really is not all that bad. The third and final strategy is the easiest to implement, choosing to engage in CHBs. In this example, choosing to engage in CHBs might consist of planning to go to the gym later to burn off the consumed calories of the cake. Activating CHBs results in the easiest strategy because it allows individuals to have the best of both worlds: eating the cake but not feeling guilty about it (Knauper et al., 2004; Rabiau et al., 2006).

If a desire is extremely high, CHBs are unlikely to be activated because the intensity of the desire already justifies the behavior. Therefore, CHBs are usually activated for medium strength desires. CHBs can be accurate or inaccurate, meaning that the healthy behavior does or does not compensate for the unhealthy behavior respectively. It can be difficult to distinguish
between accurate and inaccurate CHBs because of the multiple negative effects of many unhealthy behaviors. It may be possible that the compensatory behavior is able to compensate for some, but not all negative effects of the unhealthy behavior (Knauper et al., 2004; Rabiau et al., 2006; Sleigh & Westmoreland, 2014). Poor health can result from continuing to engage in unhealthy behavior and inappropriately believing that the healthy behavior compensates for it (Knauper et al., 2004).

An activated CHB must come with the intention to actually engage in the compensatory behavior in order to reduce the cognitive dissonance (Rabiau et al., 2006). However, individuals may often choose not to carry out the compensatory behavior (Knauper et al., 2004; Sleigh & Westmoreland, 2014). Without a plan for engaging in the compensatory behavior, an individual is likely to fail to initiate the behavior (Rabiau et al., 2006). Failure to engage in the compensatory behavior might contribute to the failure of diets and weight loss attempts (Knauper et al., 2004; Monson et al., 2008).

Monson et al. (2008) demonstrated CHB use in dieters through the temptation of cookies. Participants were tempted with a high fat/high sugar cookie or low fat/low sugar cookie, and it was predicted that the dieters would need to rationalize their reasoning for choosing to eat the high fat/high sugar cookie. The cognitive dissonance is greater for dieters because consumption of cookies directly conflicts with health goals of dieting or losing weight. Results provided evidence for dieters engaging in CHB use in response to temptation. Their results suggest that CHBs should be considered when evaluating reasons for failed dieting attempts and unsuccessful self-regulation. Not completing the compensatory behavior also results in continuity of and the possibility of increased cognitive dissonance. This increased cognitive dissonance is relieved when the individual successfully engages in the compensatory
behavior and seeks relief by changing their beliefs of risk perception, or as time passes it becomes reduced (Rabiau et al., 2006).

CHBs may prevent individuals from achieving their health goals and adapting healthy lifestyles (Knauper et al., 2004). The less a health goal is motivated by oneself, the more likely the individual will activate CHBs in order to fulfill desires, which in turn negatively affects health goals (Taut & Baban, 2008). CHB use is linked to poor health knowledge and choices (Sleigh & Westmoreland, 2014), negative health outcomes, and lower goal attainment (Rabiau et al., 2006).

Health professionals often have to deal with patients not adhering to their behavioral change advice, even with serious health problems such as coronary heart disease (Taut & Baban, 2008). It is probable that the dissonance experienced between unhealthy nutrition style and medical advice concerning a healthy routine in coronary heart disease patients is stronger compared to healthy individuals. Taut and Baban (2008) demonstrated the use of CHBs in coronary heart disease patients. For coronary heart disease patients, being given strict dietary advice and failure to adhere to this advice while possibly engaging in the opposite (e.g. consuming excess salt, fat, and sugar) resulted in higher CHB use.

Rabiau, Knauper, Nguyen, Sufrategui, and Polychronakos (2009) examined compensatory health beliefs about glucose testing in adolescents with type I diabetes. These researchers specifically explored if beliefs about glucose testing are associated with a low adherence to treatment and poor metabolic control. Results showed that CHBs were associated with poor A1C levels and a poorer adherence to self-care behaviors. It is also interesting to note that CHBs predicted blood glucose control and adherence to treatment. An incorrect CHB of believing that one can compensate for not testing glucose levels was associated with fewer
regular checks of one’s glucose levels and with poorer metabolic control. Addressing the role of CHBs in diabetes could ultimately improve the long-term health of individuals with this disease.

In smoking specifically, CHBs have been established as a way to resolve the cognitive dissonance arising from knowledge of the negative effects of smoking but having the desire to smoke. Radke, Scholz, Keller, Knauper, and Hornung (2010) aimed to investigate if CHBs are related to a lower readiness to stop smoking. Smoking-specific CHBs were significantly negatively related to an individual’s readiness to stop smoking even after controlling for other predictors such as self-efficacy and conscientiousness. These findings suggest that CHBs provide a possible explanation for why adolescents fail to stop smoking. Glock, Muller, and Krolak-Schwerdt (2013) examined the impact that graphic warning labels have on smoking-specific CHBs by testing CHBs both implicitly and explicitly. Warning labels had no influence on CHBs on an explicit level, and it was concluded that unlearning implicit cognitions may affect explicit CHBs and ultimately reduce their role in diminishing the negative feelings caused by smoking.

Radtke, Scholz, Keller, and Hornung (2012) examined whether smoking-specific CHBs could add to the prediction of smoking behavior intentions over and above predictors specified by the Health Action Process Approach (HAPA). The HAPA predictors included risk perception, outcome expectancies, and self-efficacy. Results showed that smoking-specific CHBs were significantly negatively related to the intention to stop smoking. These CHBs accounted for variance over and above variance explained by the HAPA-specific predictors. Berli et al. (2014) explored the prediction of physical activity in adolescents from CHBs. Data were collected on physical activity, HAPA variables, and CHBs. Results indicated that CHBs were related to lower intentions of being physically active. CHBs predicted variance over and
above the variance explained by HAPA predictors in adolescents’ intentions and change in intentions.

Sleigh and Westmoreland (2014) examined the relationship between CHBs and impulsivity, coping styles, personal health perception, and health knowledge in adults. Participants responded to questionnaires assessing these variables. Impulsivity, maladaptive coping style, and less emphasis on future consequences were significantly related to the increased use of CHBs. Participants with higher CHB scores were more likely to report using maladaptive coping strategies. Impulsivity and less emphasis on future consequences were associated with increased reliance on CHB. The results of this study further suggest that time perspective should be incorporated into research regarding CHBs to provide a more multidimensional assessment. This previous research conducted on impulsiveness, time perspective, and CHBs has led to the present study.

**Research Question and Hypotheses**

Previous research has established correlations among impulsiveness, time perspective, and health behavior. A relationship between impulsiveness and the use of CHBs has also been identified through previous research. However, time perspective and impulsiveness had yet to be examined together in predicting the use of CHBs. The present study investigated the following research question: Can usage of compensatory health beliefs be predicted from impulsiveness and time perspective scores?
**Impulsiveness**

H1: Impulsiveness scores will be positively correlated with CHB scores.

**Time Perspective**

H2: Present-hedonistic time perspective scores will be positively correlated with CHB scores.

H3: Present-fatalistic time perspective scores will be positively correlated with CHB scores.

H4: Future time perspective scores will be negatively correlated with CHB scores.

H5: Past-negative time perspective scores will be positively correlated with CHB scores.

H6: Past-positive scores will be negatively correlated with CHB scores.

**Impulsiveness and Time Perspective**

H7: Impulsiveness and time perspective scores will more accurately predict usage of CHB than either variable alone.
CHAPTER 3
METHODOLOGY

Participants

Participants included 165 students at the University of Central Missouri. The age range of the participants was 18 to 39 with a mean age of 19.33 years old ($SD =2.14$). The majority of the sample identified as White/Caucasian 78.2%, 13.3% identified as Black or African American, 4.8% identified as Hispanic or Latino, 1.8% identified as Asian/Pacific Islander, 1.2% identified as Biracial, and .60% identified as Native American or American Indian. For gender 62.4% of participants identified themselves as women, 36.4% identified themselves as men, and 1 participant identified as transgender. For family of origin socioeconomic status, 32.7% indicated middle-middle class and 29.1% indicated growing up in a household with a combined annual income of $50,001-$75,000. A power analysis indicated a sufficient sample size of 39 for a multiple regression with a medium effect. According to Field (2012), for a multiple regression analysis with up to six predictor variables, a sample size of 100 participants is recommended. Participants signed up on a voluntary basis through an online research participant management system.

Materials

**Barratt Impulsiveness Scale-11.** The Barratt Impulsiveness Scale-11 (BIS-11) was used to assess impulsiveness (see Appendix A). The BIS-11 was developed through revisions made to the BIS-10 by Patton et al. in 1995. The scale consists of 30 items rated one to four on a four-point Likert scale (rarely/never, occasionally, often, almost always/always). The items include statements that describe impulsive and non-impulsive behaviors and preferences. After necessary items were reverse-scored, the items were summed to create an overall impulsiveness score, with higher scores suggesting greater impulsiveness.
The BIS-11 is a widely used measure of impulsiveness and demonstrates adequate psychometric properties (Vasconcelos et al., 2012). The Cronbach’s alpha for internal consistency has ranged from 0.66 to 0.83. Good criterion-related validity has been demonstrated by a significant association between BIS-11 scores and a wide variety of risky behaviors such as binge eating symptoms, alcohol consumption, and cigarette smoking. The Cronbach’s alpha for the BIS-11 was 0.67 in the present study.

**Zimbardo Time Perspective Inventory.** The Zimbardo Time Perspective Inventory (ZTPI) was the second measure used for the present study (see Appendix B). The ZTPI was developed by Zimbardo and Boyd in 1999. The inventory consists of 56 items rated one to five on a five-point Likert scale (very uncharacteristic, uncharacteristic, neutral, characteristic, and very characteristic). The items include statements that are differentiated into the five ZTPI factors (past-negative, present-hedonistic, future, past-positive, and present-fatalistic). After reverse-scoring the necessary items, the scores from each factor were added together and then divided by the number of items in that factor. Higher scores on a particular factor indicated that an individual predominantly adopts that time perspective.

The ZTPI demonstrates acceptable reliability and validity. Test-retest reliabilities have ranged from 0.70 to 0.80 (Zimbardo & Boyd, 1999). Convergent and discriminant validities have been supported through relating various established psychological constructs to all five factors of the ZTPI. Present-hedonistic scores have been significantly associated with sensation seeking as demonstrated by a correlation coefficient of 0.72. The present-fatalistic factor was significantly associated with anxiety as shown by a correlation coefficient of 0.47. Scores on the future factor have been significantly associated with conscientiousness as shown by a correlation coefficient of 0.73. Past-negative scores have been significantly associated with depression as shown by a
correlation coefficient of 0.69. Finally, past-positive scores were significantly and negatively correlated with aggression as shown by a correlation coefficient of -0.19.

The Cronbach’s alphas for the present study included: past-negative time perspective 0.85, present-fatalistic time perspective 0.80, future time perspective 0.61, past positive 0.41, and present-hedonistic time perspective 0.86. If item 24 was deleted, the Cronbach’s alpha for future time perspective would be 0.69. If item 25 was deleted, the Cronbach’s alpha for past-positive time perspective would be 0.57.

**Compensatory Health Beliefs Scale.** The Compensatory Health Beliefs Scale was the final measure used for the present study (see Appendix C). This scale was developed by Knauper et al. in 2004. The CHB scale consists of 17 items that describe common compensatory health beliefs. Items were rated one to five on a five-point Likert scale (totally disagree, somewhat disagree, neither agree nor disagree, somewhat agree, and totally agree). Items were summed to create an overall CHB score. Higher scores on this scale demonstrated a higher tendency to engage in compensatory health beliefs.

This measure also holds adequate reliability and validity (Knauper et al., 2004). The Cronbach’s alpha for internal consistency has been established as 0.80 and the test-retest correlation coefficient as 0.75. The Cronbach’s alpha for construct validity is 0.76. The CHB scale has high convergent validity with health self-efficacy measures and conscientiousness. It has high discriminant validity with all other NEO-FFI measures of personality, health locus of control, and social desirability. The Cronbach’s alpha for the present study was 0.79.

**Demographics.** Demographic questions included for the study covered the variables of age, gender, ethnicity, family of origin’s annual income, and socioeconomic class (see Appendix
D). These demographics were chosen to assess for differences among the sample, provide an accurate description of the participants, and improve the generalizability of the study.

**Design**

The present study used a correlational design. Six predictor variables were used for the study: present-hedonistic time perspective, present-fatalistic time perspective, future time perspective, past-negative time perspective, past-positive time perspective, and impulsiveness. The outcome variable was compensatory health beliefs.

**Procedure**

The present study took place through an online research participant management system. The study consisted of four sections: impulsiveness, time perspective, compensatory health beliefs, and demographics. After agreeing to the informed consent document (see Appendix E), participants completed the Barratt Impulsiveness-Scale 11 (see Appendix A) followed by the Zimbardo Time Perspective Inventory (see Appendix B). After completion of the time perspective section, participants completed the Compensatory Health Beliefs Scale (see Appendix C), and the demographics questions (see Appendix D). After completion of all four sections, participants were presented with a debriefing statement (see Appendix 6). The entire study took approximately 30 minutes to complete. Participants may have received course credit for participation in this study.
Overall scores were generated for the Barratt Impulsiveness Scale-11 (Patton et al., 1995) and the Compensatory Health Beliefs Scale (Knauper et al., 2004). Separate scores were created for all five time perspectives of the Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999). Means and standard deviations can be found in Table 1.

Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>Compensatory Health Beliefs</td>
<td>48.78</td>
<td>9.41</td>
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<tr>
<td>Impulsiveness</td>
<td>69.99</td>
<td>7.70</td>
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<tr>
<td>Present-hedonistic</td>
<td>3.53</td>
<td>.58</td>
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<tr>
<td>Present-fatalistic</td>
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<td>.68</td>
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<tr>
<td>Future</td>
<td>3.37</td>
<td>.43</td>
</tr>
<tr>
<td>Past-negative</td>
<td>3.17</td>
<td>.78</td>
</tr>
<tr>
<td>Past-positive</td>
<td>3.29</td>
<td>.44</td>
</tr>
</tbody>
</table>

Before conducting the planned analyses, assumptions for conducting multiple regression analysis were evaluated. Quantitative data, independent observations, predicting for the same population that was sampled, and a linear relationship were all met. Homoscedasticity was evaluated by examining the scatterplot of predicted values and residuals. The scatterplot displayed an equal spread of residuals. Independent errors were evaluated through the Durbin Watson statistic. The Durbin Watson was 1.90, which was close to two, showing that this assumption has been met. The normality of errors assumption
was assessed through viewing the histogram of residuals, and this assumption was met. For a medium effect, a minimum N of 100 for up to six predictors is sufficient. The N of 165 for the study indicates a sufficient sample size. Multicollinearity was evaluated by examining the VIF, as it should have been close to one. The VIF was close to one for all predictor variables, therefore this assumption was met. All assumptions required for a multiple regression were met.

Hypotheses one through six were evaluated by examining the Pearson correlations as shown in Table 2. The Pearson r was computed between impulsiveness and CHB. The correlation was not statistically significant, \( r(163) = .14, p = .08 \), therefore hypothesis one was not supported. The Pearson r was computed between present-hedonistic time perspective and CHB. The correlation was statistically significant, \( r(163) = .36, p < .001 \), therefore hypothesis two was supported. The Pearson r was computed between present-fatalistic time perspective and CHB. The correlation was statistically significant, \( r(163) = .51, p < .001 \), therefore hypothesis three was supported. The Pearson r was computed between future time perspective and CHB. The correlation was not statistically significant, \( r(163) = .14, p = .08 \), therefore hypothesis four was not supported. The Pearson r was computed between past-negative time perspective and CHB. The correlation was statistically significant, \( r(163) = .24, p < .001 \), but not in the direction predicted, therefore hypothesis five was not supported. The Pearson r was computed between past-positive time perspective and CHB. The correlation was statistically significant, \( r(163) = .28, p < .001 \), therefore hypothesis six was supported.
Hypothesis seven was evaluated by conducting a hierarchical multiple regression. A hierarchical multiple regression was performed with impulsiveness and the time perspectives as predictor variables and compensatory health beliefs as the outcome variable. All five time perspectives were entered in the first block and impulsiveness was added in the second block. The final equation accounted for a significant portion of variance, $F(5,164) = 14.87$, $p < .001$, Adjusted $R^2 = .30$. As shown in Tables 3 and 4, the only significant predictor was present-fatalistic time perspective, therefore hypothesis seven was not fully supported. The adjusted $R^2$ for the first model was .30 which suggests that 30% of the variance was explained by the time perspectives. However, the adjusted $R^2$ for the second model was also .30 (30%) which suggests that impulsiveness does not predict any additional variance over the time perspectives.

Table 2.

Pearson Correlations for Compensatory Health Beliefs, Impulsiveness, and Time Perspective scores ($N=165$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<td>1. Compensatory Health Beliefs</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>2. Impulsiveness</td>
<td>.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Present-hedonistic</td>
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<td>.40***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Present-fatalistic</td>
<td>.51***</td>
<td>.27***</td>
<td>.41***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Future</td>
<td>.14</td>
<td>.05</td>
<td>.14</td>
<td>-.06</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>6. Past-negative</td>
<td>.24**</td>
<td>.10</td>
<td>.16*</td>
<td>.56***</td>
<td>-.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Past-positive</td>
<td>.28***</td>
<td>.12</td>
<td>.34***</td>
<td>.18*</td>
<td>.42***</td>
<td>.01</td>
<td></td>
</tr>
</tbody>
</table>

* $p < .05$.
** $p < .01$.
*** $p < .001$.
Table 3.

*Regression Coefficients for Predicting Compensatory Health Beliefs*

<table>
<thead>
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<th>Step 1</th>
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<th>t</th>
<th>p</th>
</tr>
</thead>
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<td>1.67</td>
<td>.10</td>
</tr>
<tr>
<td>Past Negative</td>
<td>-.42</td>
<td>.97</td>
<td>-.44</td>
<td>.66</td>
</tr>
<tr>
<td>Present Hedonistic</td>
<td>2.03</td>
<td>1.22</td>
<td>1.66</td>
<td>.10</td>
</tr>
<tr>
<td>Future</td>
<td>2.18</td>
<td>1.61</td>
<td>1.36</td>
<td>.18</td>
</tr>
<tr>
<td>Past Positive</td>
<td>2.41</td>
<td>1.64</td>
<td>1.48</td>
<td>.14</td>
</tr>
<tr>
<td>Present Fatalistic</td>
<td>6.38</td>
<td>1.21</td>
<td>5.30</td>
<td>.00</td>
</tr>
</tbody>
</table>

Table 4.

*Regression Coefficients for Predicting Compensatory Health Beliefs*

<table>
<thead>
<tr>
<th>Step 2</th>
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<th>SE</th>
<th>t</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>Constant</td>
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<td>1.88</td>
<td>.06</td>
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<tr>
<td>Past Negative</td>
<td>-.46</td>
<td>.97</td>
<td>-.47</td>
<td>.64</td>
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<tr>
<td>Present Hedonistic</td>
<td>2.41</td>
<td>1.30</td>
<td>1.86</td>
<td>.07</td>
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<tr>
<td>Future</td>
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<td>1.37</td>
<td>.17</td>
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<tr>
<td>Past Positive</td>
<td>2.35</td>
<td>1.64</td>
<td>1.44</td>
<td>.15</td>
</tr>
<tr>
<td>Present Fatalistic</td>
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<td>1.22</td>
<td>5.37</td>
<td>.00</td>
</tr>
<tr>
<td>Impulsiveness</td>
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<td>.09</td>
<td>-.89</td>
<td>.38</td>
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</table>
CHAPTER 5
DISCUSSION

Previous research has established a relationship between impulsiveness and health behavior (Braddock et al., 2011; Bongers et al., 2015; Guerrieri et al., 2008; Melanko & Larkin, 2013), time perspective and health behavior (Adams & White, 2009; Guthrie et al., 2014; Hamilton et al., 2003; Henson et al., 2006; Zimbardo & Boyd), CHB and health behavior (Knauper et al., 2004; Monson et al., 2008; Rabiau et al., 2006; Rabiau et al., 2009; Radke et al., 2010; Radke et al., 2012; Taut & Baban, 2008; Sleigh & Westmoreland, 2014), as well as impulsiveness and CHB (Sleigh & Westmoreland, 2014). Prior to this study, research has not examined impulsiveness, time perspective, and CHB together. The purpose of this study was to evaluate the relationship between impulsiveness, time perspective, and CHB as well as the ability of impulsiveness and time perspective to predict CHB.

Explanation of Results

Hypothesis one stated that impulsiveness scores would be positively correlated with CHB scores. This hypothesis was not supported. This finding is contrary to previous research, which has found a relationship between impulsiveness and CHB (Sleigh & Westmoreland, 2014). Specifically, Sleigh and Westmoreland (2014) found that impulsivity was associated with an increased reliance on CHB. This finding is also surprising because previous research has used the same measures to assess CHB and impulsiveness that were used in the present study. In relation to CHB use, it is possible that individuals who are impulsive do not take the time to rationalize their unhealthy behaviors.

Hypothesis two stated that present-hedonistic time perspective scores would be positively correlated with CHB scores. This hypothesis was supported. Present-hedonistic time perspective most closely relates to impulsiveness. Previous research has indicated a correlation
between present-hedonistic time perspective and sensation-seeking, which is a characteristic of impulsiveness (Zimbardo & Boyd, 1999).

Hypothesis three stated that present-fatalistic time perspective scores would be positively correlated with CHB scores. This hypothesis was supported. It is possible that living in the present moment while being negative, promotes an individual to engage in CHB use. Hypothesis four stated that future time perspective scores would be negatively correlated with CHB scores. This hypothesis was not supported. Health education and health promotion are primarily future oriented disciplines. It is possible that individuals who are future oriented have an easier time adopting healthy behaviors, and therefore do not need to engage in CHB use as often as other individuals. Previous research has indicated a relationship between future time perspective and increased protective behaviors (Henson et al., 2006). It is also possible that there are different types of future-oriented individuals. Some individuals may be less likely to engage in CHBs as described. However, other individuals may engage in CHBs because thinking about the future in terms of their health allows them to also think about how they will compensate for their poor health decisions.

Hypothesis five stated that past-negative time scores would be positively correlated with CHB scores. This hypothesis was supported. Again, with health education and health promotion being future oriented it is possible that an individual who orients towards the past experiences greater cognitive dissonance regarding health behavior. Therefore, these individuals are likely to engage in CHB use.

Hypothesis six stated that past-positive scores would be negatively correlated with CHB scores. This hypothesis was not supported. The correlation was significant and positive. It was hypothesized that the tendency to be positive even though orienting towards the past, would
mean that an individual did not engage in CHB use. However, this was not the case. This finding suggests that it is possible that looking towards the past regardless of being positive or negative, promotes an individual to engage in CHB use.

Hypothesis seven stated that impulsiveness and time perspective scores would more accurately predict usage of CHB than either variable alone. Present-fatalistic time perspective was the only significant predictor of CHB. Impulsiveness did not account for variance over and above variance explained by the time perspectives. Present-fatalistic individuals are often hopeless towards the future. This finding suggests that it is not just living in the present moment, but being negative and negative towards the future specifically that predicts whether an individual will engage in CHB use. Choosing to engage in CHB reduces the cognitive dissonance associated with participating in an unhealthy behavior (Rabiau et al., 2006). It is possible that this cognitive dissonance is stronger for present-fatalistic individuals, who are already negative.

Limitations

It is important to note the limitations of the present study in order to correctly interpret the results and to discuss future directions. One limitation is that the present study was conducted online and used self-report measures, therefore it cannot be concluded if participants provided genuine answers. The design of the study was correlational, so cause and effect relationships cannot be concluded. Another limitation is that the sample consisted of college students, therefore may not represent the general population. The sample primarily identified as White/Caucasian, which also limits the generalizability of the study.
Future Research

One recommendation for future research would be to conduct a replication of this study within the general population and in person. When using a self-report online study, it cannot be known if the participants answered the questions genuinely. A replication would improve the generalizability of this study. A direction for future research could include the subscales of the Barratt Impulsiveness Scale-11 and the Compensatory Health Beliefs Scale. The Barratt Impulsiveness Scale-11 has three subscales: attentional impulsiveness, motor impulsiveness, and nonplanning impulsiveness. The compensatory health beliefs scale has four subscales: substance use, eating/sleeping habits, stress, and weight regulation. Exploring the specific subscales of impulsiveness and CHB would provide further insight into the relationships between impulsiveness and health behavior as well as CHB and health behavior. Evaluating the subscales of these measures would also provide insight into whether or not certain health behaviors and/or certain types of impulsiveness are particularly prone to CHB use.

Another suggestion for future research would be to conduct this study within a specific community/population. It is possible that by honing in on a specific community/population, results would be able to contribute to deciphering unique health challenges associated within a particular community of individuals or population. Finally, previous research is limited regarding CHB. Therefore, another suggestion for future research would be to explore other possible factors that may be related to CHB use. By exploring other possible factors related to CHB use, this variable can be understood further.

Conclusion

The present study investigated the predictability of impulsiveness and time perspective on CHB, and the relationship between impulsiveness, time perspective, and CHB. The results of
this study provide further insight into the roles of impulsiveness, time perspective, and CHB in health behavior. The importance of present-fatalistic time perspective in regard to CHB, can be used to design health interventions targeted for these individuals. Health interventions that take into consideration personality factors such as time perspective and impulsiveness may be particularly useful and successful.

Previous research is limited regarding CHB. It is possible that although CHB use may be common among many individuals, it is not a well-known concept. It is important that CHB use is understood, because it may hinder individuals from reaching their health goals. By better understanding the rationalization that occurs when engaging in an unhealthy behavior, incorrect CHB use could possibly be reduced. If individuals knew that they were not correctly compensating for an unhealthy behavior with a healthy behavior, perhaps they would be less likely to engage in the unhealthy behavior. Finally, understanding the importance of CHB use is vital for combating the health statistics of the United States. With 7 of the 10 leading causes of death being chronic diseases, it is valuable to create new ways to develop health knowledge as well as interventions for health behavior.
REFERENCES


Knauper, B., Rabiau, M., Cohen, O., & Patriciu, N. (N.D.). Compensatory Health Beliefs Scale [Database record]. Retrieved from PsycTESTS. doi: http://dx.doi.org/10/1037/t03171-000


APPENDIX A
BARRATT IMPULSIVENESS SCALE-11

Instructions: People differ in the ways they act and think in different situations. This is a test to measure some of the ways in which you act and think. Read each statement and choose one of the following responses for each statement: rarely/never, occasionally, often, or almost always/always. Do not spend too much time on any statement. Answer quickly and honestly.

1. I plan tasks carefully.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

2. I do things without thinking.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

3. I make-up my mind quickly.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

4. I am happy-go-lucky.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always
5. I don’t “pay attention”.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

6. I have “racing” thoughts.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

7. I plan trips well ahead of time.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

8. I am self controlled.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

9. I concentrate easily.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always
10. I save regularly.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

11. I “squirm” at plays or lectures.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

12. I am a careful thinker.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

13. I plan for job security.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always
15. I like to think about complex problems.

- Rarely/never
- Occasionally
- Often
- Almost always/always

16. I change jobs.

- Rarely/never
- Occasionally
- Often
- Almost always/always

17. I act “on impulse”.

- Rarely/never
- Occasionally
- Often
- Almost always/always

18. I get easily bored when solving thought problems.

- Rarely/never
- Occasionally
- Often
- Almost always/always

19. I act on the spur of the moment.

- Rarely/never
- Occasionally
- Often
- Almost always/always
20. I am a steady thinker.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

21. I change residences.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

22. I buy things on impulse.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

23. I can only think about one thing at a time.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always

24. I change hobbies.
   - Rarely/never
   - Occasionally
   - Often
   - Almost always/always
25. I spend or charge more than I earn.

- Rarely/never
- Occasionally
- Often
- Almost always/always

26. I often have extraneous thoughts when thinking.

- Rarely/never
- Occasionally
- Often
- Almost always/always

27. I am more interested in the present than the future.

- Rarely/never
- Occasionally
- Often
- Almost always/always

28. I am restless at the theater or lectures.

- Rarely/never
- Occasionally
- Often
- Almost always/always

29. I like puzzles.

- Rarely/never
- Occasionally
- Often
- Almost always/always
30. I am future oriented.

- Rarely/never
- Occasionally
- Often
- Almost always/always
APPENDIX B
ZIMBARDO TIME PERSPECTIVE INVENTORY

Instructions: Please read each item and as honestly as you can answer the following question: “How characteristic or true is this of you?”. Choose one of the following responses: very uncharacteristic, uncharacteristic, neutral, characteristic, or very characteristic.

1. I believe that getting together with one's friends to party is one of life's important pleasures.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

2. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

3. Fate determines much in my life.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

4. I often think of what I should have done differently in my life.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic
5. My decisions are mostly influenced by people and things around me.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

6. I believe that a person's day should be planned ahead each morning.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

7. It gives me pleasure to think about my past.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

8. I do things impulsively.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

9. If things don't get done on time, I don't worry about it.
   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic
10. When I want to achieve something, I set goals and consider specific means for reaching those goals.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

11. On balance, there is much more good to recall than bad in my past.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

12. When listening to my favorite music, I often lose all track of time.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

13. Meeting tomorrow's deadlines and doing other necessary work comes before tonight's play.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

14. Since whatever will be will be, it doesn't really matter what I do.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
15. I enjoy stories about how things used to be in the "good old times."

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

16. Painful past experiences keep being replayed in my mind.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

17. I try to live my life as fully as possible, one day at a time.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

18. It upsets me to be late for appointments.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

19. Ideally, I would live each day as if it were my last.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
20. Happy memories of good times spring readily to mind.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

21. I meet my obligations to friends and authorities on time.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

22. I've taken my share of abuse and rejection in the past.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

23. I make decisions on the spur of the moment.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

24. I take each day as it is rather than try to plan it out.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
25. The past has too many unpleasant memories that I prefer not to think about.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

26. It is important to put excitement in my life.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

27. I've made mistakes in the past that I wish I could undo.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

28. I feel that it's more important to enjoy what you're doing than to get work done on time.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

29. I get nostalgic about my childhood.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
30. Before making a decision, I weigh the costs against the benefits.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

31. Taking risks keeps my life from becoming boring.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

32. It is more important for me to enjoy life's journey than to focus only on the destination.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

33. Things rarely work out as I expected.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

34. It's hard for me to forget unpleasant images of my youth.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
35. It takes joy out of the process and flow of my activities, if I have to think about goals, outcomes, and products.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

36. Even when I am enjoying the present, I am drawn back to comparisons with similar past experiences.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

37. You can't really plan for the future because things change so much.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

38. My life path is controlled by forces I cannot influence.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
39. It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway.

   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

40. I complete projects on time by making steady progress.

   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

41. I find myself tuning out when family members talk about the way things used to be.

   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

42. I take risks to put excitement in my life.

   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic

43. I make lists of things to do.

   - Very uncharacteristic
   - Uncharacteristic
   - Neutral
   - Characteristic
   - Very characteristic
44. I often follow my heart more than my head.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

45. I am able to resist temptations when I know that there is work to be done.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

46. I find myself getting swept up in the excitement of the moment.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

47. Life today is too complicated; I would prefer the simpler life of the past.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
48. I prefer friends who are spontaneous rather than predictable.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

49. I like family rituals and traditions that are regularly repeated.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

50. I think about the bad things that have happened to me in the past.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

51. I keep working at difficult, uninteresting tasks if they will help me get ahead.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

52. Spending what I earn on pleasures today is better than saving for tomorrow's security.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
53. Often luck pays off better than hard work.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

54. I think about the good things that I have missed out on in my life.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

55. I like my close relationships to be passionate.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic

56. There will always be time to catch up on my work.

- Very uncharacteristic
- Uncharacteristic
- Neutral
- Characteristic
- Very characteristic
APPENDIX C
COMPENSATORY HEALTH BELIEFS SCALE

Instructions: Different people believe different things about their health. Below is a list of beliefs that someone might have about staying healthy. Please read each sentence carefully and choose one of the following responses for each sentence: totally disagree, somewhat disagree, neither agree nor disagree, somewhat agree, or totally agree. Remember that there are no right or wrong answers, because everybody believes different things.

1. Relaxing on the weekend can make up for stress during the week.
   - Totally disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat agree
   - Totally agree

2. Using artificial sweeteners compensates for extra calories.
   - Totally disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat agree
   - Totally agree

3. Exercising can compensate for smoking.
   - Totally disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat agree
   - Totally agree

4. It is OK to go to bed late if one can sleep longer the next morning (only the number of hours count).
   - Totally disagree
   - Somewhat disagree
   - Neither agree nor disagree
   - Somewhat agree
   - Totally agree
5. Not drinking alcohol during the week can make up for the effects of drinking too much alcohol during the weekend.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

6. Skipping the main dish can make up for eating dessert.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

7. Relaxing in front of the TV can compensate for a stressful day.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

8. Eating whatever one wants in the evening is OK if one did not eat much during the day.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

9. Eating healthy can make up for the effects of regularly drinking alcohol.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree
10. Sleeping in on the weekends can compensate for too little sleep during the week.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

11. Exercising can make up for the bad effects of stress.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

12. Starting a new diet tomorrow compensates for breaking a diet today.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

13. The effects of drinking coffee can be balanced by drinking equal amounts of water.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

14. It is OK to skip breakfast if one eats more during lunch or dinner.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree
15. Sleep compensates for stress.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

16. It is alright to drink a lot of alcohol as long as one drinks lots of water to flush it.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree

17. Smoking from time to time is OK if one eats healthy.

- Totally disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Totally agree
Instructions: Please answer the following questions regarding characteristics about yourself.

1. What is your age?

2. Please specify your gender.
   - Man
   - Woman
   - Other: 

3. Please specify your ethnicity.
   - White/Caucasian
   - Hispanic or Latino
   - Black or African American
   - Native American or American Indian
   - Asian/Pacific Islander
   - Other: 

4. Please use your best estimate to indicate your family of origin’s annual income.
   - less than $15,000
   - $15,001-25,000
   - $25,001-35,000
   - $35,001-50,000
   - $50,001-75,000
   - $75,001-100,000
   - $100,001-150,000
   - greater than $150,000
5. Would you consider yourself growing up which of the following?

- lower-lower class
- middle-lower class
- upper-lower class
- lower-middle class
- middle-middle class
- upper-middle class
- lower-upper class
- middle-upper class
- upper-upper class
APPENDIX E
INFORMED CONSENT

Informed Consent Form

Identification of Researchers: This research is being done by Demie Derry and Dr. Steve Schuetz. We are with the Department of Psychological Science at the University of Central Missouri.

Purpose of the Study: The purpose of this study is to evaluate compensatory health beliefs, impulsiveness, and time perspective.

Request for Participation: We are inviting you to take part in a research study evaluating compensatory health beliefs, impulsiveness, and time perspective. Compensation for participation will be 3 research participation points, which may be used if any of your professors allow you to participate in research for class credit or extra credit. Participation is voluntary and you may withdraw from the study at any point.

Description of Research Method: This study involves completing 4 online questionnaires assessing compensatory health beliefs, impulsiveness, time perspective, and demographics. This study will take about 30 minutes to complete.

Privacy: All of the information collected will be anonymous. We will not record your name, student number, or any information that could be used to identify you. Given the online nature of the survey you will have the option to take the survey in the environment if your choosing. We suggest taking the survey in a private, secure location such as your own home or dorm room. This will prevent other students or faculty from seeing your answers.

Explanation of Risks: The risks associated with participating in this study are similar to the risks of everyday life. The study will only ask you to answer questions that you are likely to encounter in an everyday life setting. In the rare event of an injury, subjects will be referred to the UCM Counseling Center located on campus in the JCKL Library, room 2305. A psychologist is available at their office Monday through Friday, 8:00 A.M. to 12:00 P.M. and from 12:45 P.M. to 5:00 P.M.

Explanation of Benefits: You will benefit from participating in this study by getting firsthand experience in psychological research. In addition, you will be awarded 3 research participation points through the SONA system that you may use if any of your instructors award credit for research participation. If you wish to not participate in research, your instructor will offer you an alternative assignment. This study will also provide important information to the scientific community about compensatory health beliefs, impulsiveness, and time perspective.
Questions: If you have any questions about this study, please contact Demie Derry at dld35390@ucmo.edu. If you have any questions about your rights as a research participant, please contact the Human Subjects Protection Program at (660) 543-4621.

If you have read this form and agree to participate, please click below.

☐

If you do not wish to participate, please click below.

☐
Debriefing Form

Thank you for taking the time to participate in this research study. Your contributions to this experiment are greatly appreciated.