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I, Jennifer Rackemacher,

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# EFFECTS OF STRESS AND AFFECT ON PERCEIVED PHYSICAL AND MENTAL WELL-BEING

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Jennifer Rademacher

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Committee Chair: Christine A. Hovanitz, Ph.D.
Committee: Laura A. Nabors, Ph.D.
Robert M. Stutz, Ph.D.

## Abstract

Rabkin and Struening (1976) stated that the goal of life-event research is to establish a connection between stressful events and the onset of physical or psychological illness. Subsequent research suggests that the association between the two is weak (Cohen & Edwards, 1989), and research has evolved into an examination of mediators and moderators of the relationship. Negative affect (NA), and, to a lesser extent positive affect (PA), are two possible mediators. A consistent association between NA and physical symptom reporting measures has been found and labeled "somatopsychic distress" (Watson & Pennebaker, 1989). However, some researchers believe the association reflects confounded measures rather than mediation (Schroeder & Costa, 1984). Examination of PA, which is not confounded with these measures, may shed light on the role of affect in the relation of life stress to physical symptom reporting while avoiding the problem of contamination. Low PA may influence perceived physical well-being through depression. Depression is related to poorer ratings of health (Tessler & Mechanic, 1978), and some believe that low PA defines depression (Clark & Watson, 1991). Thus, a mechanism, other than somatopsychic distress, exists through which PA mediates physical symptom reporting. Five hundred one students completed questionnaires assessing background, subjective well-being (*Satisfaction with Life Scale (SWBLSS)*; Diener, Emmons, Larson, & Griffin, 1985), physical symptom reporting (*Pennebaker Inventory of Limbic Languidness (PILL)*; Pennebaker, Burnam, Schaeffer, & Harper, 1977), life-event stress (*Life Experiences Survey (LES)*; Sarason, Johnson, & Siegel, 1978), and positive and negative affect (*Positive and Negative Affect Schedule (PANAS)*; Watson, Clark, & Tellegen, 1988). Results indicated that individuals who report more negative life-events tend to report more physical symptoms. Interestingly, PA was not related to physical symptom reporting for females and males, but PA was related to subjective well-being for females. Physical symptom reporting and social desirability significantly influenced the reporting of satisfaction with life. Individuals who reported more physical symptoms tended to report less satisfaction with life, whereas those scoring higher on social desirability tended to report more satisfaction with life. Implications of this study, its limitations, and ideas for future research are discussed.

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# Chapter I

## Introduction

In a select review of the literature at the time, Rabkin and Struening (1976) stated that the goal of life-event research is to establish a temporal connection between stressful events and the onset of physical or psychological illness. It is thought that the more stressful life-events one experiences, the greater the impact of stress. That is, the stress experienced from each event is cumulative. The accumulation of stress is thought to be related to physical health. However, the association between stress and illness is weak. In fact, research studying the impact of life-event stress on physical and mental well-being has shown that correlations among these variables are rarely above .30 (Cohen & Edwards, 1989). Because this association is weak and very important, researchers have focused on other factors that might affect the relationship between stress and physical and mental well-being.

One such factor that continues to gain attention is emotion. The goal of the present study was to examine the contribution made by positive affect (PA) to the relationship between stress and perceived physical and mental health. Past research has focused on negative affect (NA), while little to no research has examined the role of PA in this relationship. Therefore, the present study focused on PA, negative life-events and social desirability as predictors of perceived physical and mental well-being. A literature review of life-event stress, negative affect, and positive affect research follows. Hypotheses for the present study conclude the introduction.

*Life-Event Stress*

One component of the relationship between life-event stress and well-being often examined is the nature of the stressful event itself. Whether the event is positive or negative can influence perceived physical and mental well-being. Stressful events that are negative, such as a death or loss of a home due to a fire, impact people differently than stressful events that are positive, such as an expected birth of a baby or getting married. Research shows that the experience of negative life-events often results in poorer perception of physical well-being while the experience of positive events typically does not (Siegel & Brown, 1988).

The relationship between valence of the event, positive or negative, and perception of physical and mental well-being is complex. In a study conducted by Siegel and Brown (1988), 212 adolescent females, ages 10 to 17, were given questionnaires assessing stressful life-events, depression, and physical symptoms. They were assessed at two different time points spaced nine months apart. Results indicated that negative stressful events were associated with increased physical symptom reporting at both time points. Conversely, there was no significant association between positive events and symptom reporting. Interestingly, upon further analyses, it was found that negative events were associated with increased physical symptom reporting only when the occurrence of positive events was low. It appears that when individuals are experiencing both negative and positive life-events, positive events seem to moderate or lessen the impact of the stress from the negative events.

In the same study, depression was entered into the regression equation. It is another factor considered to influence the relationship between stress and perceived

health. Depression is often associated with both negative events and physical symptom reporting. Therefore, depression was included to determine if it was the primary influence between stressful events and perceived health. With depression level accounted for, negative events still remained significantly associated with symptom reporting, but only in the presence of low positive events. In addition, depression was not the primary influence between stress and health. Instead, the experience of negative events seems to influence reported mood. High levels of negative events led to feeling depressed when positive events were reported. Negative events contributed no significant influence on mood when the occurrence of positive events was high. Again, positive events acted as a moderator, but this time the moderation occurred between negative events and mental well-being (Siegel & Brown, 1988).

It must be noted that the nature of the relationship between positive life-events and physical symptom reporting is more complex than moderation between negative events and perceived health. Positive events also can be stressful. They can result in an increase of illness reports when accompanied by low self-esteem. When individuals who view themselves negatively have a positive event occur, a bigger change in perception of themselves and the world is required. This can be quite stressful and can result in poorer perceived health (Brown & McGill, 1989). Conversely, when individuals who have high self-esteem experience a positive event, it is in agreement with their view of themselves and the world. Thus, some people may enjoy the positive event more. In addition, the experiencing of positive events may improve perceived health by decreasing symptom reporting in these individuals. Moreover, the relationship extends itself to actual objective measures of health. Individuals with high self-esteem who experienced positive life-

events tend to visit the doctor less often than individuals with low self-esteem who experienced positive life-events (Brown & McGill, 1989). Again, the type of life-event experienced, whether it is positive or negative, plays an important role in the relationship between stressful events and perceived health.

Research shows that, in addition to positive events, other variables can moderate the relationship between stress and health. A moderate to high sense of coherence, defined in Jorgensen, Frankowski, and Carey (1999) as the ability to understand, manage, process, and cope with life stressors, is one such variable. It is suggested that a sense of coherence can lessen the impact of negative life-event stress on perceived physical well-being (Jorgensen, Frankowski, & Carey, 1999). Physical fitness and exercise also act as moderators for the relationship between stress and health. Individuals experiencing stress who exercise more and are physically fit tend to report fewer symptoms than those who do not exercise. Furthermore, individuals who are physically fit and experiencing stress tend to visit the doctor less often than those who are not physically fit (Brown, 1991).

Along with the valence of an event, the individual's perception of how distressing a life-event is affects the relationship between stress and perceived well-being. One criticism of life-event research is that different socioeconomic classes, ethnicities, and age groups experience different stressors, and the same stressors are perceived very differently. Some stressors may impact certain groups of individuals more severely, while others may experience these stressors less severely but more frequently (Rabkin & Struening, 1976). Therefore, an important factor in the relationship between stress and health is the amount of distress accorded to an event. The perception of distress seems to strengthen the relationship between stress and well-being (Byrne, 1984). Individual

differences in stress can be measured by evaluating events as positive or negative, and assessing the level of impact on one's life.

Along with life-event stress measures, some researchers have included measures of daily life-events. One study examined the impact of negative social exchange and positive social support along with major life-event stress and daily hassles on physical symptom reporting and mental well-being. Edwards, Hershberger, Russell, and Markert (2001) found that stressful life events and daily hassles were related to increased physical symptom reporting and poorer mental health. Upon further analyses, it was found that life-event stress was not a significant predictor of perceived physical well-being, but the experiences of negative social interactions with others was an important contributor to symptom reporting. Daily hassles contributed small, unique variance to perceived physical health. The nonsignificant contribution of life-event stress to physical symptom reporting may be due to the strong correlation between the measures used to assess life stress and negative social exchange. Daily hassles were also significantly correlated with negative social exchange (Edwards et al., 2001). Therefore, variance contributed by life stress and daily hassles may be accounted as variance due to negative social exchange.

In another study of life-events, daily hassles, and perceived well-being, life-event stress was found to significantly influence individuals' satisfaction with life as well as their reported levels of positive affect (PA) and negative affect (NA). Further analyses showed that negative daily events contributed the most unique variance to PA and NA levels, while positive daily events contributed the most unique variance to satisfaction with life. In addition, daily life-events contributed more variance to satisfaction with life than did life-event stress (McCullough, Huebner, & Laughlin, 2000). Some believe daily

hassles actually mediate the relationship between life-event stress and perceived health (Wagner, Compas, & Howell, 1988). These authors suggested both major life-events and minor daily events need consideration as both can have a cumulative effect on well-being and mood (McCullough, Huebner, & Laughlin, 2000).

*Negative Affect*

While many researchers investigated the different facets of life-event stress and their influence on perceived well-being, others expanded the focus by looking at additional variables that might mediate or moderate this relationship. Some research suggests that stress influences perceived well-being primarily through its effect on emotions, specifically positive affect (PA) and negative affect (NA). Negative affectivity, according to Watson and Clark (1984), is a "mood-dispositional dimension" (pp. 465) whose characteristics include worry, anxiety, distress, agitation, tension, and low self-esteem at the high end of the dimension, and being at ease, fulfilled, and confident at the low end. Individuals high in NA also experience anger, guilt, discontent, and tend to report negative responses to interactions with others. These feelings may affect perceptions of events, and result in the interpretation of events as negative or stressful.

In a study conducted by Watson (1988), NA was significantly correlated with perceived stress. The higher the NA, the more stress was reported. One reason given for the finding was that individuals high in NA have the tendency to experience more distress in any given situation regardless of how stressful the event actually is. Because of low self-esteem and the tendency to be distressed, individuals high in NA tend to focus on negative aspects of the world, such as mistakes and disappointments. They tend to be more thoughtful and concentrate internally on issues (Watson & Clark, 1984).

Interestingly, if a person is high in NA, it does not inevitably mean that they are low in PA, that they lack joy, pleasure, or interest in life. These two dimensions, NA and PA, have been shown to be independent of each other (Watson & Clark, 1997; Watson & Clark, 1984; Watson, Clark, & Tellegen, 1988). The same individual can experience high levels of each.

Not only does affect impact the perception of stress, it also influences perceived cognitive well-being. Research shows that affect, alone, can impact perceived well-being regardless of life-event stress. A study conducted by Robinson (2000) looked at the effects of stress and mood on cognitive well-being (e.g., self-perceptions of autonomy, purpose in life, self-acceptance) and found stress, NA, and PA were significantly related to cognitive well-being. Positive affect was positively related to cognitive well-being, whereas NA was negatively related to cognitive well-being. When stress level was controlled, affect remained a significant predictor of cognitive well-being, but when affect was controlled, stress no longer significantly predicted cognitive well-being. This pattern suggests that a person's affective state may be the "driving force," or the mediator, between stress and cognitive well-being. Additionally, it appears that recent life events (i.e., those experienced within the last week), in comparison to those experienced in the distant past (i.e., life circumstances), only impact well-being in as much as they influence emotional states at the time mental well-being is reported (Robinson, 2000).

In addition to perceived stress and cognitive well-being, a great deal of research shows that NA is correlated with perceived physical well-being (Brown & McGill, 1989; Costa & McCrae, 1980; Jorgensen & Richards, 1989; Kvaal & Patodia, 2000; Watson & Pennebaker, 1989). Individuals who view life negatively are pessimistic and experience

life as more distressing and unsatisfying tend to report more physical symptoms (Watson & Pennebaker, 1989). In several studies, correlations between .30 and .50 are found between NA and physical symptom reporting (Costa & McCrae, 1987; Watson & Pennebaker, 1989).

In a study conducted by Emmons (1991), students were asked to fill out a daily symptom checklist and an affect measure. A significant positive correlation was found between NA and daily symptom reporting. Furthermore, individuals high in NA scored lower on PA than those who scored low on the NA measure. No significant relationship was found between PA and physical symptom reporting. Again, the results showed a relationship between NA and physical symptom reporting.

Further evidence for the positive relationship between NA and increased physical symptom reporting comes from research involving individuals sick with the cold or flu at the time of the study. Unlike most studies which typically involve healthy participants, Salovey and Birnbaum's study (1989) recruited individuals who were ill at the time of participation. The researchers found that inducing a sad mood via a visualization technique, relative to inducing a happy mood or neutral mood, was significantly related to increased reports of aches and pains and heightened levels of discomfort. Thus, inducing a negative mood state influenced the reporting of symptoms and symptom severity (Salovey & Birnbaum, 1989).

Some researchers have broken NA down into two constituent parts, anxious affect and depressive affect (Leventhal et al., 1996). In one study, the last two were combined to create an overall NA score. They found that state measures of all three variables, NA, anxious affect, and depressive affect, predicted physical symptom reporting six months

later. However, the strength of the relationship was modest. Jorgensen and Richards (1989) evaluated trait anxiety and found this variable to mediate the relationship between negative life-events and perceived physical health. Thus, similar to what is suggested of high NA individuals (Costa & McCrae, 1985), individuals who are highly anxious may interpret "benign" bodily sensations as distressing, which results in the perception of poorer physical health.

Researchers have also looked at the trait of neuroticism and its influence on perceived well-being. Neuroticism is the tendency to experience negative emotionality (Watson & Pennebaker, 1989). In a study conducted by Williams & Wiebe (2000), individuals who scored high on a neuroticism measure reported more physical symptoms than those who scored low on the scale. Neuroticism is related to the trait measure of self-focused attention (Williams & Wiebe, 2000). Perhaps self-focused attention leads to the increased physical symptom reporting and is, at least in part, responsible for the relationship between neuroticism and physical symptom reporting.

In addition, NA and neuroticism appear to be highly related. According to Costa and McCrae (1987), they are essentially the same. Depue and Monroe (1986), however, suggest that although they are closely related, they are not precisely the same construct. Some researchers suggest that NA is the mediator of neuroticism's effect on physical symptom reporting. However, while some studies show a mediating relationship, others failed to demonstrate the same (Williams & Wiebe, 2000). Since the research is equivocal, more studies, such as this one, are needed.

While research shows over and over again that NA, neuroticism, and negative life-events are related to perceived physical health (Costa & McCrae, 1980; Tessler &

Mechanic, 1978), the relationship does not always extend itself to actual health outcomes. In a study conducted by Watson (1988), the only objective measure significantly correlated with health complaints was sick days. That is, individuals who were sick and stayed home from work or school tended to report more physical symptoms. Interestingly, NA was related to symptom reporting and symptom reporting was related to sick days, but NA was unrelated to sick days. The findings suggest that the health measures used contained both objective and subjective components (Watson 1988; Watson & Pennebaker, 1989) which may make the interpretation of findings difficult. Dua (1994), however, found a significant relationship between NA and objective health outcomes. He reported that NA was related to the number of times an individual visited the doctor, the number of days they reported being ill, and the number of times a person missed work. Nonetheless, other researchers argue that, over the long term, NA (Watson & Pennebaker, 1989) and neuroticism (Costa & McCrae, 1987) are not significantly related to overall objective health status but rather only play a significant role in the perception of physical health at the time of self-report.

According to Watson and Pennebaker (1989), of the many hypotheses suggested to explain the relationship between NA and perceived health, the one that receives the most support is the Symptom Perception Hypothesis. The Symptom Perception Hypothesis proposes that individuals high in NA "are more likely to perceive, overreact to, and/or complain about minor physical symptoms and sensations" (pp. 246). One form of this hypothesis, the strong form, suggests that the relationship between NA and physical symptom reporting is spurious. That is, there is no relationship between the two. Rather, individuals high in NA tend to pay attention to and complain more about how

they are feeling. The attention to and negative interpretation of internal sensations is thought to be the reason for the significant associations found between NA and poorer perceived physical well-being.

A weaker form of the hypothesis suggests that physical symptoms exist, but individuals exaggerate the extent and strength of the physical symptoms (Watson & Pennebaker, 1989). In this case, the symptom severity is thought to occur to a lesser degree than what is reported. One reason for the overreporting may be that, as suggested earlier, individuals high in NA and/or neuroticism tend to direct their attention toward negative information about the self. High NA individuals tend to be hypervigilant and more attuned to any bodily sensations experienced (Costa & McCrae, 1987; Pennebaker, 2000; Watson & Pennebaker, 1989). Moreover, individuals high in NA tend to assign negative interpretations to ambiguous sensations (Watson & Clark, 1984). The internal focus, or heightened attention to internal sensations and emotions, is what is thought to increase physical symptom reporting (Pennebaker, 1982; Salovey & Birnbaum, 1989).

As one can see, the results of life-event stress and health studies are complicated and often conflicting. Research studies have reported a variety of results. Some researchers have found a significant relationship between life-event stress and perceived health (Brown & McGill, 1989; Costa & McCrae, 1980; Jorgensen & Richards, 1989; Kvaal & Patodia, 2000), while others have suggested it is not as important as once thought (Schroeder & Costa, 1984; Watson & Pennebaker, 1989). One suggestion that has been made is that measures of life-event stress and physical symptom reporting are confounded by neuroticism or NA, rather than mediated by the variable. Some have suggested that the content of the items on both measures may be a direct consequence of

neuroticism (Schroeder & Costa, 1984). In a review of the data in the literature, as well as six samples of their own, Watson and Pennebaker (1989) found that NA correlated with physical symptom reporting, while PA did not. The relationship remained significant with different physical symptom and psychological measures. Furthermore, in two sets of subjects, NA correlated with 46 of 54 physical symptom items. Negative affect correlated the same as the internal consistency measure of physical symptom reporting. Because of the consistent relationship between the two measures, it was suggested that there is an underlying factor of "somatopsychic distress" (p.238) in both the NA and physical symptom reporting measures (Watson & Pennebaker, 1989). Further evidence of the contamination hypothesis is provided by Schroeder and Costa (1984; Burke, Brief, & George, 1993). They found that when contaminated items, such as those related to health and neuroticism were removed from the life-event stress measure the relationship between stress and physical illness disappeared.

*Positive Affect*

In contrast to all of the research and controversy involving the relationship between NA and physical and mental well-being, much less research has focused on the effect of PA on these same variables. Lack of research in this area may be a result of the emphasis put on NA for many years because of the strong relationship found between NA and perceived physical and mental well-being. Positive affect has become more of a focal point in stress and perceived well-being research after it was found that NA was measured in the life-event scales and physical symptom scales, and may have inflated the relationship in many of the research findings (Watson & Pennebaker, 1989).

Recently, a few studies have focused on PA. Again, the concept of PA is not simply the opposite of NA. High PA is the tendency to feel excited about life, to feel happy versus sad, to be energetic, and to be attentive and aware. At the other end of the continuum, low PA is characterized by inactivity, lack of pleasure, or lack of energy (Watson & Clark, 1984). In a study conducted by Watson (1988), perceived stress was not related to PA. Instead it was suggested that individuals could have high levels of stress and still report feeling happy, excited, and energetic. However, some research has shown that a person's level of PA can affect how one feels physically (Dua, 1994; Pettit et al., 2001). According to Dua (1994) and Petit et al. (2001), PA is significantly associated with perceived physical well-being. In fact, Pettit et al. (2001) reported that PA significantly predicted how a person perceived their physical health to be 5 weeks later. The relationship was still significant even after variables significantly influencing physical symptom reporting such as NA and alcohol and cigarette use were taken into account. Individuals high in PA tended to endorse fewer physical symptoms, while those low in PA tended to report more physical complaints (Pettit et al., 2001). Although PA appears to impact physical symptom reporting in some research, others have demonstrated that NA is still a stronger predictor of physical symptom reporting (Dua, 1994). Additionally, in a study conducted by Watson (1988), increased health complaints were related to low PA, but only in conjunction with high NA.

It may be that PA influences perceived physical well-being through its unique relationship with depression. However, little research has been conducted to explore this relationship. Past research demonstrates that PA is negatively related to depression (Watson, Clark, & Carey, 1988) and some believe low PA is a defining feature of

depression (Clark & Watson, 1991). Because NA is related to most general aspects of self-reported distress and is significantly related to both depression and anxiety, it cannot be used to discriminate between the two moods, which often co-occur (Watson, Clark, & Carey, 1988). Positive affect, however, can be used to differentiate between depression and anxiety (Clark & Watson, 1991). It does so by not being significantly related to anxiety when depression is taken into account (Gencoz, 2002). In addition, the importance of low PA in depression is made clear by the examination of its content; low PA is characterized by a lack of pleasure, low self-esteem, despair, and lack of energy (Watson, Clark, & Carey, 1988). Others have found PA to be negatively related to social phobia as well as depression. In particular, social phobia was the only anxiety disorder with which PA was significantly correlated (Costa & McCrae, 1980). The relation between low PA and social phobia is consistent with the view that PA is related to social activity (Costa & McCrae, 1980; Watson, 1988). Again, the results suggest that PA can be used to discriminate between depression and anxiety, with the exception of social phobia.

Finally, research shows that depression is related to poorer ratings of health (Tessler & Mechanic, 1978). Because low PA is related to depression and depression is related to poor ratings of health, one of the mechanisms by which low positive affect might influence perceived physical well-being is through depression. While some research has explored the relationship between PA and depression and PA and physical well-being, little or no research has addressed this mechanism.

*Summary*

The relationship between stress, emotions, and health is a complex one. It appears that stress does impact mood, which in turn, can impact perceived physical and mental well-being. What the literature has shown is that emotions play a crucial role in how stress and health are perceived. Much of the emotion research has focused on NA and its impact on the relationship between stress and health. Many studies find measures of NA, stress, and physical symptom reporting contain confounding information making it difficult to tease the three variables apart. Thus, findings from studies using these variables could paint a misleading picture regarding the relationship between stress, mood, and perceived health. Measures of PA are relatively free of contamination with the criterion of physical and psychological well-being. However, little research has looked at the effects of PA, specifically low PA, on stress and well-being. It would be unlikely that an effect between PA and physical well-being would be due to predictor-criterion contamination. Therefore, low PA may play a very important role in the relationship between stress and physical and mental well-being. Since low PA is related to depression and depression is related to physical symptom reporting, low PA may be the mediator between depression and the perception of physical well-being. As one can see, there is a wealth of information regarding NA's role in perceived well-being while PA has been largely neglected. Therefore, the objective of this study is to examine the impact of PA and stress on perceived physical and mental well-being.

*Hypotheses*

Based upon the lack of research regarding PA's role in perceived well-being, the objectives of the current study were to examine the role PA played in the relationship

between stress and physical symptom reporting and satisfaction with life. The study has three hypotheses. The first hypothesis predicts that PA in the presence of life-event stress will negatively influence physical symptom reporting. Specifically, individuals with low PA reporting high stress will report more physical symptoms. The second hypothesis predicts that PA in the presence of high stress will positively influence satisfaction with life. That is, individuals with high PA experiencing high stress will report higher levels of satisfaction with life. The third and final hypothesis predicts that individuals reporting more physical symptoms will report less satisfaction with life.

# Chapter II

## Method

### Participants

This study is an analysis of existing data that were collected from undergraduates enrolled in Introductory Psychology courses at the University of Cincinnati. Five-hundred-and-one students were recruited to participate in the study. At the professor's discretion, students were asked to participate in this research project as a classroom exercise and as a source of 2 hours of course credit. The questionnaires were administered during the beginning of class and students were given two hours to complete the questionnaires. A copy of the consent form and each questionnaire are provided in Appendix A and B, respectively.

The purpose of the study was explained to the subjects, at which time the subjects were given time to choose whether or not to participate. Subjects choosing to leave at this time did not receive extra course credit. Subjects who did participate but then chose to stop midway through were asked to stay in the room for the remainder of the administration of the questionnaires and were given the extra course credit.

There were 290 female participants who ranged in age from 18 to 45 years ($M$ = 20.1, $SD$ = 2.75); and 205 male participants who ranged in age from 18 to 43 years ($M$ = 20.5, $SD$ = 2.55). Six individuals did not identify their sex. Of this sample, 87.8% were Caucasian, 6.4% African-American, 2.0% Asian-American, 0.4% Hispanic, .04% Native-American, 0.6% other, and 2.4% did not identify ethnicity.

## Instruments

### Self-report questionnaires

Students were asked to complete a variety of questionnaires assessing their background (sex, age, ethnicity, first language, year in college, academic achievement, etc.), mood, self-esteem, subjective well-being, physical symptom reporting, life-event stress, headache status, anxiety level, positive and negative affect, as well as other psychological factors. The following questionnaires were the focal point of this study: Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978), Positive and Negative Affect Schedule (PANAS) (Watson & Tellegen, 1988), Pennebaker Inventory of Limbic Languidness (PILL) (Pennebaker, Burnam, Schaeffer, & Harper, 1977), the Satisfaction with Life Scale (Diener, Emmons, Larson, & Griffin, 1985), and the Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960).

Life Experiences Survey. The Life Experiences Survey (LES; Sarason, Johnson, & Siegel, 1978) consists of 57 questions assessing the positive and negative impact of life-events, which have occurred, either during the previous 6 or 7 months to one year ago. Items included in the questionnaire occur frequently in the general population and are thought to represent life changes that occur regularly and significantly impact life.

The LES includes events that range from those that are normally considered negative, such as "death of a spouse," "serious illness or injury of close family member," "divorce," and "being fired from a job" to those that are generally considered positive, such as "marriage," "outstanding personal achievement," "marital reconciliation with mate," and "reconciliation with a boyfriend/girlfriend." Items are rated on a 7-point scale from "-3 = extremely negative" to "0 = no impact" up to "+3 = extremely positive."

Negative change scores are calculated by summing together all of those events scored negatively. Positive change scores are calculated by summing together all of those events rated positively. Finally, a total change score is calculated by summing the previous two scores together. Of primary interest for this study is the cumulative score of the negatively rated events. Test-retest reliabilities for 5-6 week intervals of the negatively appraised events were .56 ($p \leq .001$) and .88 ($p \leq .001$). The scale is a good measure of stress-related events and was reported to be free from the bias of social desirability (Sarason, Johnson, & Siegel, 1978).

The Positive and Negative Affect Schedule. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) consists of 20 items used to measure positive and negative affect. Participants are asked to rate their emotions and feelings experienced at that very moment on a 5-point scale ranging from "1 = very slightly or not at all" to "5 = extremely." Items on the PANAS were chosen to reflect relatively pure measures of positive or negative affect (Watson, Clark, & Tellegen, 1988). Evidence for the independence of the positive and negative scales of the PANAS was provided in a study conducted by Egloff (1998). The PANAS has been shown to be internally reliable (Cronbach's $\alpha$ range from .86 to .90 for positive affect and from .84 to .87 for negative affect) and has excellent convergent and discriminant correlations, indicating the scale is a good measure of the underlying factors (Watson & Tellegen, 1988).

The Pennebaker Inventory of Limbic Languidness. The Pennebaker Inventory of Limbic Languidness (PILL; Pennebaker, Burnam, Schaeffer, & Harper, 1977) consists of 54 items rated on a 5-point scale and is used to assess the frequency of common

symptoms and bodily sensations. Participants are asked to rate, on a scale ranging from "A = have never or almost never experienced the symptom" to "E = more than once every week," how often they have experienced the symptom. Test-retest reliability for a 2-week interval was .73 (Pennebaker, Burnam, Schaeffer, & Harper, 1977). Validity is supported by work done by Pennebaker (1982), which showed that individuals who scored highly on the PILL sought out more medical attention or treatment than did those who scored low on the PILL.

Satisfaction with Life Scale. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffen, 1985) is a 5-item questionnaire assessing life satisfaction. This questionnaire consists of 5 items that were chosen to assess global life satisfaction. Participants are asked to rate themselves on a 7-point scale ranging from "1 = strongly disagree" to "7 = strongly agree." The SWLS is a reliable measure with a test-retest reliability correlation coefficient, for a 2 month interval, of .82 and a Cronbach alpha of .87. The SWLS was found to be independent of the Marlowe-Crowne social desirability scale (correlation coefficient of .02) indicating that it is minimally subject to social desirability (Diener et al., 1985). It was found to be moderately strongly correlated with many other subjective well-being scales (Diener et al., 1985).

Marlowe-Crowne Social Desirability Scale (MCSD). The Marlowe-Crowne Social Desirability scale (Crowne & Marlowe, 1960) is a 33-item scale used to measure social desirability. Participants are asked to read a statement and rate it as true or false as it best applies to them. The statements describe either everyday behaviors that are undesirable or infrequent behaviors that are desirable. Higher scores on the measure

signify the need for approval. Test-retest reliability after a 1-week interval was .84 (Fisher, 1967).

# Chapter III

## Results

### Descriptive Statistics

Means and standard deviations for each of the measures of life event stress, affect, and physical and mental well-being for females and males are presented in Table 1 and Table 2, respectively. Means and standard deviations for each of the measures of life event stress, affect, and physical and mental well-being collapsed across gender are presented in Table 3. Three sex differences were found. Males and females differed significantly on the reporting of negative life-events ($F = 7.46, p = .0065$), with females reporting more negative life-events ($M = -11.86$, $SD = 8.85$) than males ($M = -9.74$, $SD = 8.09$). The two groups also differed on the reporting of positive life-events ($F = 6.49, p = .0112$) with females reporting more positive life-events ($M = 9.98$, $SD = 7.34$) than males ($M = 8.34$, $SD = 7.01$). Finally, females differed significantly from males in the reporting of physical symptoms ($F = 7.62, p = .006$) with females, again, reporting more physical symptoms ($M = 121.88$, $SD = 28.23$) than males ($M = 114.51$, $SD = 27.48$). The two groups did not significantly differ on the reporting of positive affect, negative affect, satisfaction with life, and social desirability.

Normative data for the LES have been reported (Sarason, Johnson, & Siegel, 1978) for college students enrolled in Introductory to Psychology classes [Negative (males): $M = 6.22$ ($SD = 6.28$), Positive (males): $M = 9.74$ ($SD = 8.07$), Negative (females): $M = 7.04$ ($SD = 7.04$), Positive (females): $M = 9.57$ ($SD = 6.66$)]. In addition, Reynolds and Hovanitz (2000) collected data from a similar sample of college students in

Table 1

*Descriptive Statistics for Measures of Life-Event Stress, Affect, and Physical and Mental Well-Being for Females*

| Measures | Mean | Standard Deviation |
|---|---|---|
| Negative Life-Events (n = 269) | -11.86 | 8.85 |
| Positive Life-Events (n = 293) | 9.98 | 7.34 |
| Positive Affect (n = 285) | 23.52 | 7.23 |
| Negative Affect (n = 282) | 15.35 | 6.02 |
| Marlow-Crowne (n = 275) | 14.00 | 4.40 |
| PILL (n = 264) | 121.88 | 28.23 |
| Satisfaction with Life Scale (n = 278) | 20.92 | 7.06 |

Table 2

*Descriptive Statistics for Measures of Life-Event Stress, Affect, and Physical and Mental Well-Being for Males*

| Measures | Mean | Standard Deviation |
|---|---|---|
| Negative Life-Events (n = 194) | -9.74 | 8.09 |
| Positive Life-Events (n = 210) | 8.34 | 7.01 |
| Positive Affect (n = 206) | 24.32 | 6.86 |
| Negative Affect (n = 207) | 15.55 | 6.28 |
| Marlow-Crowne (n = 188) | 13.99 | 4.35 |
| PILL (n = 187) | 114.52 | 27.48 |
| Satisfaction with Life Scale (n = 199) | 21.23 | 7.14 |

Table 3

*Descriptive Statistics for Measures of Life-Event Stress, Affect, and Physical and Mental Well-Being Across Sex*

| Measures | Mean | Standard Deviation |
|---|---|---|
| Negative Life-Events (n = 461) | -10.90 | 8.55 |
| Positive Life-Events (n = 501) | 9.27 | 7.24 |
| Positive Affect (n = 489) | 23.87 | 7.08 |
| Negative Affect (n = 487) | 15.40 | 6.07 |
| Marlowe-Crowne (n = 461) | 14.00 | 4.36 |
| PILL (n = 451) | 118.82 | 28.12 |
| Satisfaction with Life Scale (n = 477) | 21.05 | 7.09 |

Introductory to Psychology courses. For women, a mean impact of negative life-events of 12.78 (*SD* = 9.94) was reported and a mean impact of positive events for women of 10.19 (*SD* = 8.39) was reported. Men reported a mean impact of negative life events of 10.48 (*SD* = 9.66) and a mean impact of positive life events of 9.02 (*SD* = 7.59). Mean scores for men and women on the impact of negative life events in the current study are lower indicating more negative stress than the mean reported in Sarason et al. (1978) and similar to the values reported in Reynolds and Hovanitz (2000). The mean scores for positive life-events for men and women in the current study are similar to those reported for other students in Introductory to Psychology classes (Reynolds & Hovanitz, 2000; Sarason, Johnson, & Siegel, 1978).

Normative data for the PANAS have been reported (Watson, Clark, & Tellegen, 1988) for an adult non-patient sample [NA: *M* = 14.8 (*SD* = 5.4), PA: *M* = 29.7 (*SD* = 7.9)]. In addition, Hovanitz, Fillippides, Lindsay, & Scheff (2002) reported a mean negative affect value of 18.19 (*SD* = 6.67) for a depressed group of individuals and a mean negative affect value of 14.33 (*SD* = 4.78) for a non-depressed group of individuals. The mean value of negative affect of 15.55 and 15.35 for men and women, respectively, in the current study is similar to the values obtained for the non-depressed group in the Hovanitz et al. (2002) study and the non-patient sample in the Watson et al. (1988) study. Hovanitz et al. (2002) also reported a mean value of 24.10 (*SD* = 8.26) for positive affect. Means for positive affect in the current study [males: *M* = 24.32, (*SD* = 6.86) and females: *M* = 23.52, (*SD* = 7.23)] are similar to the mean reported in Hovanitz et al. (2002) and slightly lower than the mean reported in Watson et al. (1988). Previous research has demonstrated that females tend to report lower PA than males (Hovanitz et

al., 2002), which was not found in the present study. All three studies used college students in Introductory to Psychology courses.

Ebert, Tucker, & Roth (2002) reported a mean value for the Pennebaker Inventory of Limbic Languidness (PILL) of 111.3 ($SD$ = 25.4) for 202 college students enrolled in Introductory to Psychology classes. The current study found a similar value for males ($M$ = 114.51, $SD$ = 27.48) and a higher value for female students ($M$ = 121.88, $SD$ = 28.23).

The following normative data for the SWBLSS, using responses from college students from Introductory to Psychology courses, are reported: $M$ = 23.5 ($SD$ = 6.43) (Diener, Emmons, Larsen, & Griffen, 1985). The current study found a similar but slightly lower value [$M$ = 21.05 ($SD$ = 7.09)] in a similar sample of college students.

A correlation matrix for the measures of life-event stress, affect, physical symptom reporting, satisfaction with life, and social desirability are reported in Table 4. Due to the fact that social desirability is significantly correlated with measures of stress, affect, physical symptom reporting, and social desirability, it was entered into each of the multiple regression equations to test Hypothesis 1, 2, and 3. Results of all regression analyses are reported in tables in Appendix C.

Hypothesis 1

Hypothesis 1 stated that PA in the presence of negative life events would significantly predict physical symptom reporting. To test the hypothesis, a simultaneous multiple regression was conducted to determine the amount of variance in physical symptom reporting accounted for when PA, negative life-events, and social desirability were considered. Because a gender difference was found for the reporting of negative

Table 4

*Pearson Product Moment Correlations between Stress, Affect, and Physical and Mental Well-Being Scales*

| Scale | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| 1. Negative life events | - | -.02 | .10* | -.32** | .18** | -.34** | .36** |
| 2. Positive life events | | - | .24** | -.04 | .14** | .02 | .22** |
| 3. Positive affect | | | - | -.03 | .23** | -.02 | .24** |
| 4. Negative affect | | | | - | -.23** | .32** | -.32** |
| 5. Social desirability | | | | | - | -.30** | .28** |
| 6. PILL | | | | | | - | -.21** |
| 7. SWBLSS | | | | | | | - |

*$p < .05$. **$p < .01$.

life-events, positive life-events, and physical symptom reporting, males and females were analyzed separately as well as together. Similar findings occurred in all cases. Hypothesis 1 was not supported. Positive affect did not significantly predict physical symptom reporting for gender-combined and gender-specific data. The percentage of variance accounted for in physical symptom reporting of females by PA, negative life-events, and social desirability was 17.04%. Both social desirability ($F = 17.91, p \leq .001$) and negative life-events ($F = 17.51, p \leq .001$) significantly contributed unique variance to physical symptom reporting, whereas PA did not. Social desirability uniquely accounted for 6.76% of the variance above and beyond that of negative life-events, whereas negative life-events uniquely accounted for 6.61% of the variance in physical symptom reporting above and beyond that of social desirability.

Similar results were found for males. In this case, however, the percentage of variance accounted for in physical symptom reporting of males was less. This time, 12.06% of the variance was accounted for by PA, negative life-events, and social desirability. Again, both social desirability ($F = 8.07, p \leq .01$) and negative life-events ($F = 11.43, p \leq .0001$) significantly contributed unique variance to perceived physical well-being. For males, social desirability uniquely contributed 4.70% variance above and beyond that of negative life-events, whereas negative life-events uniquely contributed 6.66% variance to physical symptom reporting above and beyond that of social desirability.

When the groups were collapsed across gender, a total of 15.48% of the variance in physical symptom reporting was accounted for by PA, negative life-events, and social desirability. Social desirability ($F = 25.87, p \leq .001$) and negative life-events ($F = 20.07,$

$p \leq .001$) contributed 5.83% and 7.90% unique variance to physical symptom reporting, respectively.

Hypothesis 2

Hypothesis 2 stated that PA in the presence of negative life events would negatively predict satisfaction with life. To test the hypothesis, another simultaneous multiple regression was conducted. Again, social desirability, PA, and negative life-events were entered in the regression equation for analysis. Hypothesis 2 was partially supported. Positive affect did significantly predict satisfaction with life for females and for females and males combined. It was not a significant predictor for males alone. Because a gender difference was found for the reporting of negative life-events, positive life-events, and physical symptom reporting, males and females were analyzed separately as well as together. For females, a total of 23.73% of the variance in satisfaction with life was accounted for by PA, negative life-events, and social desirability. Positive affect ($F = 17.99, p \leq .001$), negative life-events ($F = 28.04, p \leq .001$), and social desirability ($F = 4.69, p \leq .05$) contributed 6.24%, 9.72%, and 1.63% of the variance, respectively, to the prediction of satisfaction with life for females.

Different results were found for males. In this case, a total of 19.73% of the variance in satisfaction with life was accounted for by PA, negative life-events, and social desirability. However, PA did not contribute unique variance to satisfaction with life. Instead, negative life-events ($F = 20.73, p \leq .001$), and social desirability ($F = 5.28, p \leq .05$) significantly contributed unique variance to satisfaction with life. Negative life-events accounted for 11.02% of the variance above and beyond that of social desirability,

whereas social desirability contributed 5.60% of variance above and beyond that of negative life-events.

When females and males were analyzed together, the results were fairly similar to that reported for the females. In this case, all of the variables were significant predictors of satisfaction with life. A total of 20.99% of the variance in satisfaction with life was accounted for by the three predictors. Negative life-events ($F = 47.30, p \leq .001$) contributed 9.97% of the variance above and beyond that of PA and social desirability, PA ($F = 15.98, p \leq .001$) contributed 3.4% of the variance above and beyond that of negative life-events and social desirability, and social desirability ($F = 13.96, p \leq .001$) contributed 2.94% of the variance above and beyond that of PA and negative life-events to satisfaction with life.

Hypothesis 3

Hypothesis 3 stated that physical symptom reporting would be negatively related to satisfaction with life. To test the hypothesis, a third simultaneous multiple regression was run. Physical symptom reporting and social desirability were entered into the regression equation as predictors. Hypothesis 3 was supported. A total of 8.98% of the variance in satisfaction with life was accounted for by physical symptom reporting and social desirability for females. Physical symptom reporting ($F = 5.19, p \leq .05$) significantly contributed 2.14% of the variance to satisfaction with life in females above and beyond that of social desirability, whereas social desirability ($F = 9.77, p \leq .01$) contributed 4.02% of the variance above and beyond that of physical symptom reporting.

Similar results were found for the males. This time, a total of 10.68% of the variance in satisfaction with life was accounted for by physical symptom reporting and

social desirability. Again, physical symptom reporting ($F = 4.65, p \leq .05$) and social desirability ($F = 9.60, p \leq .01$) significantly contributed unique variance to satisfaction with life. Physical symptom reporting accounted for 2.74% of the variance above and beyond that of social desirability, whereas social desirability accounted for 5.64% of the variance above and beyond that of physical symptom reporting.

When females and males were combined into one group, 9.59% of the variance in satisfaction with life was accounted for by physical symptom reporting and social desirability. Physical symptom reporting ($F = 9.61, p \leq .01$) accounted for 2.31% of the variance above and beyond that of social desirability, whereas social desirability ($F = 19.32, p \leq .001$) contributed 4.65% of the variance to satisfaction with life above and beyond that of physical symptom reporting. In general, a relatively small proportion of satisfaction with life was predicted.

# Chapter IV

## Discussion

Little research to date examines the influence of PA on perceived physical and mental well-being. The goal of the present study was to address the role of PA in the relationship between stress, physical symptom reporting, and satisfaction with life. The results suggest that PA does play a significant role in the perception of well-being, in particular, with satisfaction with life. However, PA did not affect physical symptom reporting in this sample. In addition, the results of the present study confirm previous findings (Brown & McGill, 1989; McCullough, Huebner, & Laughlin, 2000; Siegel & Brown, 1988) about the relationship between negative life-events and physical symptom reporting. Results of this study indicated that individuals who reported more negative life-events tended to report more physical symptoms. The amount of variance accounted for was relatively small. What remains less clear in the literature is the nature of the relationship between PA, negative life-events, and physical symptom reporting. Hypothesis 1 proposed that PA in the presence of negative life-events decreases physical symptom reporting. Hypothesis 1 was not supported. Positive affect did not significantly predict physical symptom reporting. The variables that contributed uniquely to the reporting of physical symptom reporting were negative life-events and social desirability.

Although we know that low PA is a distinguishing feature of depression (Clark & Watson, 1991) and that depression is related to the perception of poorer physical health (Barge-Schaapveld et al., 1999; Tessler & Mechanic, 1978), it may be that low PA is just one component of many that combine to form depression. This component of depression may not account for the relationship between mood and perceived physical well-being.

This argument is not necessarily true. Others have found a relationship between low PA and physical symptom reporting (Barge-Schaapveld et al., 1999; Dua, 1994; Pettit et al, 2001). The failure to find a significant finding between PA and physical symptom reporting in the present study may be due to the sample used. It may be that individuals in the present study did not exhibit the range of PA found in other samples. In addition, individuals were instructed to report how they were feeling at that moment. Consequently, some individuals may have reported low PA, but their mood may have been transient or state-like rather than chronic or trait-like. Their mood, although poor at the moment, may not have been sustained enough to be labeled depression or to account for physical symptom reporting. In addition, most of the individuals were in their early 20s, a time when illness is less likely and a time when individuals are physically resilient. Therefore, symptom reports may have been different for these individuals than for others at later stages of life.

While PA did not predict physical symptom reporting, negative life-events did. In the past, it has been thought that negative affect and negative life-events are confounded with physical symptom measures (Schroeder & Costa,1984; Watson & Pennebaker, 1989). However, research from the recent past suggests that the relationship between stress, affect, and perceived health may be due to physiological responses that occur during stress. It has been suggested that the pathway by which negative events and emotions affect physical health is through a dysregulation of the adaptive processes of the body's major regulatory systems (Depue & Monroe, 1986).

Papousek, Schulter, and Premsberger (2002) have shown that a dissociation between level of stress perceived and resulting physiological response is related to an

increased number of physical complaints, specifically, gastrointestinal complaints. That is, individuals who perceived stress as high but who had small physiological responses (low electrodermal activity) and individuals who perceived stress as small to moderate but who had large physiological responses tended to report more physical complaints. The authors suggest that this hypo- and hyper-reactivity may be what leads to many of the conflicting results reported in the literature.

According to Clements and Turpin (2000), others have also found that life-event stress predicted emotional distress for individuals with a hypo-reactive response to high life stress. In addition, physiological activity (heart rate and skin conductance) was also significantly related to emotional distress. It is thought that life-event stress and physiological activity act together to effect the reporting of emotional distress (Clements & Turpin, 2000).

Clements and Turpin (2000) suggest that the hypo-responsivity reaction to stress may be due to individuals habituating to stress. This response may occur as a result of chronic stress rather than acute stress. In addition, a person's response to stress, both emotionally and physiologically, may be a direct sign of personality characteristics and their influence on experiencing life stress and emotional distress (Clements & Turpin, 2000).

Another interesting finding of the study was that Hypothesis 2 was only partially supported. Positive affect in addition to negative life-events and social desirability, was related to subjective well-being in females but not in males. That is, females high in PA tended to report higher satisfaction with life than those low in PA. Positive affect did not affect males' reports of satisfaction with life. For males, negative life-events and social

desirability significantly predicted satisfaction with life. In the present study, females reported more negative life-events and more positive life-events than males. However, the reporting of PA and NA were similar for the two groups. Perhaps for females, PA is more important in predicting satisfaction with life because it is needed to balance the effect of increased reporting of negative life-events. For males PA may not be as important because they are reporting less negative life-events.

In a literature review conducted by Diener et al. (1999), other researchers have suggested that females tend to experience emotions more intensely. When negative life-events occur, females may be more at risk for depression. For this reason, PA is likely to be important in the reporting of satisfaction with life in that its presence may be necessary to overcome the experience of negative life-events. In addition, the results for females are consistent with other research. Positive affect has been shown to be significantly related to satisfaction with life (Vitterso & Nilsen, 2002) and higher quality of life (Barge-Schaapveld et al., 1999), whereas life-event stress has been shown to be related to poorer mental well-being (Clements & Turpin, 2000) and less satisfaction with life (McCullough, Huebner, & Laughlin, 2000). It makes sense that females with high PA who are happy and cheerful would report greater satisfaction with life and females with high negative life-stress would report less satisfaction with life.

Finally, Hypothesis 3 was confirmed in both females and males. Physical symptom reporting and social desirability significantly influenced the reporting of satisfaction with life. Individuals who reported more physical symptoms tended to report less satisfaction with life, whereas those scoring higher on social desirability tended to report more satisfaction with life. Ebert et al. (2002) reported similar findings. In their

study, physical symptom reporting significantly correlated with perceived psychological well-being. In addition, others find that individuals with health issues tend to report more physical symptoms and poorer satisfaction with life than healthy individuals (Mueller, Montoya, Schandry, & Hartl, 1994).

In the past, it was thought that NA measures were confounded with stress and physical symptom measures (Watson & Pennebaker, 1989). Therefore, the role of PA, rather than NA, was emphasized in the present study. However, PA did not significantly predict physical symptom reporting. Interestingly, PA was significantly related only to satisfaction with life. This may be due in part to the tendency of individuals with positive dispositions to report more positively about global domains, to see life as good, even while reporting less positively about specific areas (Diener et al., 2000), such as physical symptoms.

The relationship between PA and physical symptom reporting is still not well understood. While research continues to examine the relationship between PA and physical well-being, researchers have also begun to look further into the relationship between NA and physical symptom reporting. Recent research finds that NA may be more than a confound between stress and physical symptom measures. In fact, Cohen et al. (1995) demonstrated that not only was state NA significantly related to the number of reported physical symptoms, but it was also significantly related to and directly predicted an objective, biological indicator of illness, specifically, mucous production in individuals infected with a respiratory virus.

Other research has also found that NA is related to objective physical measures. Raikkonen et al. (1999) found that negativity was related to elevations in systolic blood

pressure. Even individuals high in optimism and low in pessimism when experiencing a negative mood had elevations in blood pressure similar to pessimistic and low optimistic individuals. In addition, negative emotions are found to be related to premature ventricular contractions or cardiac arrhythmia. It appears the relationship is even stronger in individuals with compromised cardiac function (Carels et al., 2003). Furthermore, in a review of the literature of depression and heart disease, Grippo and Johnson (2002) reported that negative emotions, such as depression, are shown to be related to increased risk of "an adverse cardiovascular event" (pp. 942) in the year following the diagnosis of heart disease, increased occurrence of sudden death from myocardial infarction, and diagnosis of coronary artery disease in individuals with no previous heart troubles.

Not only is NA related to objective physical outcomes but it is also related to immune functioning. In one study, individuals with a wound with low levels of proinflammatory cytokines, chemicals released to protect against infection and to promote healing, reported higher levels of NA than individuals with higher levels of cytokines. Individuals with low cytokine levels also had higher cortisol levels, a stress hormone, in their saliva. These individuals were reporting greater distress overall (Glaser et al., 1999) as reflected by their reports of stress and negative affect. Furthermore, in a review of the literature, Kiecolt-Glaser, McGuire, Robles, and Glaser (2002) reported that studies show that NA is related to a dysregulation of the immune system. In particular, several studies show that NA is associated with lower antibody response, reduced natural killer cell activity, increased right prefrontal activity in the brain associated with reduced natural killer cell activity, and the up- and down-regulation of proinflammatory cytokines.

These findings suggest that there is a significant relationship between NA and physical health. Negative affect, then, is much more than a response style. Although individuals high in NA have the tendency to report more physical symptoms than individuals low in NA, NA is related to physical outcomes and compromised immune system functioning. The question remains whether NA influences the onset of physical symptoms and immune system dysregulation or is a result of these factors. Perhaps negative emotions, such as depression, are a result of many different physiological changes occurring within the body. On the other hand, it may be that NA and depression are causally influencing physiological changes within the body. The direction of the relationship among these variables remains unclear. Nevertheless, it is clear that NA as a mediator between life stress and physical symptom reporting should not be prematurely dismissed. Progress is being made in this research area and new questions regarding the pathways by which NA and physical health are emerging.

There are several limitations present in the study. One limitation is that the study did not include a measure of depression. This made it difficult to assess whether there were individuals who were depressed in the sample and what role PA may have played in depression. In addition, a depression measure may have been helpful in determining the nature of the relationship between depression, low PA affect, and physical symptom reporting. A second limitation is that the study involved using self-report measures. Self-report measures are subject to response biases. Using objective measures of physical health such as physiological measures, in addition to subjective measures, might have improved the interpretability of the results. A third limitation is that the study used a sample of convenience. Students volunteered to participate in the study. There may be

differences between the individuals who participated in the study and those who chose not to participate. The sample mainly consisted of individuals in their early 20s. The relationship among PA, negative life-events, and physical symptom reporting may be different for older individuals who are likely to report more physical symptoms due to the aging process. In addition, factors that affect satisfaction with life may be different for younger adults compared to older adults. There are many transitions young adults experience in a short amount of time (moving away from home, starting school, meeting new people, having new financial responsibilities, etc.) compared to older adults, who tend to have fewer of these major life-events. Finally, the sample lacked diversity and consisted primarily of Caucasian males and females. Therefore, extension of these findings is not appropriate to other ethnic groups.

It appears this research area is gaining more attention as researchers are able to incorporate more physiological measures to assess biological indices that correlate with emotions and physical and mental well-being. This has broad implications for the health psychology field, which has only begun to research the nature of the mind-body connection. Additional research will help specify further the relationship between feelings, emotions, stress, and health. Moreover, the findings will help identify the means through which treatment can prevent stress-related illness.

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Appendix A

## INFORMED CONSENT FORM – SCREENING I

I. Introductory Paragraph

Before agreeing to participate in this study, it is important that the following explanation of the proposed procedures be read and understood. It describes the purpose, procedures, benefits, risks and discomforts of the study.

II. Objective of this Study

The purpose of this study is to obtain further knowledge about life stress, emotions, and physical state.

III. Procedures

This phase of the study "Personal Experience" will involve administration of a classroom exercise and completion of XX (number of) questionnaires. The session will take 1 hour 20 minutes to complete. The questionnaires include measures of physical functioning, stress, mood, and attitude.

**With your consent to participate in this phase of the study "Personal Experience," you are also giving consent to have your current GPA as well as your SAT and/or ACT scores released to the experimenter. This information will not be released to any other individual or institution.**

Based on the data you provide on the questionnaires, you may be eligible for a later study. Your consent to participate in this study does not imply your consent to participate for a future study. However, you will be asked if you are willing to be contacted regarding possible future studies. Later phases in the study involve the completion of additional questionnaires, some performance tasks, and some psychophysiological measures.

IV. Risks, Benefits, and Precautions

There are no known risks to participation in this phase of the study Personal Experience.

Your confidentiality will be safeguarded in the following manner. All records are initially coded with social security numbers. After combining GPA and ACT/SAT data with questionnaires, social security numbers will be removed from the material sand replaced with code numbers. The central file that connects you name to these code numbers will be available only to the principal investigator and research assistants working on this project, and will be destroyed following completion of the study.

No treatment for any condition will be involved in this study. In addition, while no known risks are associated with the procedures to be utilized in this study, the complete facilities of the University of Cincinnati, including the Medical Center, would be available if required for physical, psychological, or other injury occurring as a result of participating in this research activity. All cases concerning compensation and medical treatment for injuries occurring during or caused by such participation are decided on an individual basis.

V. Availability of Information

Any questions that you may have concerning any aspect of this study will be answered by Dr. Christine Hovanitz.

VI. The Right to Withdraw

You are free to withdraw from this study at any time.

VII. Signatures

"I, the undersigned, have understood the above explanations and have given consent to my voluntary participation in "Personal Experience."

| | |
|---|---|
| Signature of Subject | Signature of Investigator |
| _____Date | _____Date |

# Appendix B

## The Life Experience Survey

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social readjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event.. Be sure that all check marks are directly across from the times they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact. If you do not understand the directions, ask your research assistant.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1. Marriage..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 2. Detention in jail or comparable institution..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 3. Death of spouse..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 4. Major change in sleeping habits (much more or much less sleep)..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 5. Death of close family member: | | | | | | | | | |
| a. mother..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| b. father..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| c. brother..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| d. sister..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| e. grandmother..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| f. grandfather..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| g. other (specify)..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 6. Major change in eating habits (much more or much less food intake)..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 7. Foreclosure on mortgage or loan..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 8. Death of close friend..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 9. Outstanding personal achievement..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 10. Minor law violations (traffic tickets, disturbing the peace, etc.)..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 11. Male: Wife, girlfriend's pregnancy..... | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12. Female: Pregnancy | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 13. Changed work situation (different) work responsibility, major change in working condition, working hours, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 14. New Job | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 15. Serious illness or injury of close family member: | | | | | | | | | |
| a. father | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| b. mother | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| c. sister | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| d. brother | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| e. grandfather | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| f. grandmother | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| g. spouse | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| h. other (specify) _____ | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 16. Sexual difficulties | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 17. Trouble with employer (in danger of losing job, being suspended, demoted, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 18. Trouble with in-laws | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 19. Major change in financial status | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 20. Major change in closeness of family members (increased or decreased closeness) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 21. Gaining a new family member | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 22. Change of residence | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 23. Marital separation from mate (due to conflict) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 24. Major change in church activities (increased or decreased attendance) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 25. Marital reconciliation with mate | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 26. Major change in number of arguments with spouse (a lot more or a lot less arguments) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 27. Married male: Change in wife's work | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28. Married female: Change in husband's work (loss of job, beginning new job, retirement, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 29. Major change in usual type and/or amount of recreation | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 30. Borrowing more than $10,000 (buying home, business, etc) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 31. Borrowing less than $10,000 (buying car, TV, getting school loan, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 32. Being fired from a job | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 33. Male: Wife/girlfriend having | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 34. Female: Having Abortion | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 35. Major personal illness or injury | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 36. Major change in social activities e.g., parties, movies, visiting (increased or decreased participation) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 37. Major change in living conditions of family (building new home, re-modeling, deterioration of home, neighborhood, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 38. Divorce | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 39. Serious injury or illness of close friend | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 40. Retirement from work | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 41. Son or daughter leaving home (due to marriage, college, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 42. Ending of formal schooling | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 43. Separation from spouse (due to work, travel, etc.) | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 44. Engagement | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 45. Breaking up with boyfriend/girlfriend | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 46. Leaving home for the first time | ___ | ___ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 47. Reconciliation with boyfriend/ girlfriend ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

Other recent experiences which have had an impact on your life. List and rate.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 48. _____ ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 49. _____ ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 50. _____ ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 51. Beginning a new school experience..... at a higher academic level (college, graduate school, professional school, etc.) | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 52. Changing to a new school at same..... academic level (undergraduate, graduate, etc.) | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 53. Academic probation ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 54. Being dismissed from dormitory ..... or other residence | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 55. Failing an important exam ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 56. Changing a major..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 57. Failing a course..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 58. Dropping a course ..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 59. Joining a fraternity, sorority..... | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |
| 60. Financial problems concerning ..... school (in danger of not having sufficient money to contribute) | __ | __ | -3 | -2 | -1 | 0 | +1 | +2 | +3 |

Age_____

Sex

# THE PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way, that is, right now. Use the following scale to record your answers.

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| Very slightly or not at all | A little | Moderately | Quite a bit | Extremely |

| | |
|---|---|
| _____interested | _____irritable |
| _____distressed | _____alert |
| _____excited | _____ashamed |
| _____upset | _____inspired |
| _____strong | _____nervous |
| _____guilty | _____determined |
| _____scared | _____attentive |
| _____hostile | _____jittery |
| _____enthusiastic | _____active |
| _____proud | _____afraid |

## THE PILL

Several common symptoms or bodily sensations are listed below. Most people have experienced most of them at one time or another. We are currently interested in finding out how prevalent each symptom is among various groups of people. On the page below, write how frequently you experience each symptom. For all items, use the following scale.

| A | B | C | D | E |
|---|---|---|---|---|
| **Have never or Almost never Experienced the Symptom** | **Less than 3 or 4 times per year** | **Every month or so** | **Every week or so** | **More than once every week** |

For example, if your eyes tend to water once every week or two, you would answer "D" next to question #1.

____ 1. Eyes water
____ 2. Itchy eyes or skin
____ 3. Ringing in ears
____ 4. Temporary deafness or hard of hearing
____ 5. Lump in throat
____ 6. choking sensations
____ 7. Sneezing spells
____ 8. Running Nose
____ 9. Congested nose
____ 10. Bleeding nose
____ 11. Asthma or wheezing
____ 12. Coughing
____ 13. Out of breath
____ 14. Swollen ankles
____ 15. Chest pains
____ 16. Racing heart
____ 17. Cold hands or feet even in hot weather
____ 18. Leg cramps
____ 19. Insomnia or difficulty sleeping
____ 20. Toothaches
____ 21. Upset stomach
____ 22. Indigestion
____ 23. Heartburn or gas
____ 24. Abdominal pain
____ 25. Diarrhea
____ 26. Constipation
____ 27. Hemorrhoids
____ 28. Swollen joints
____ 29. Stiff or sore muscles
____ 30. Back pain
____ 31. Sensitive or tender skin
____ 32. Face flushes
____ 33. Tightness in chest
____ 34. Skin breaks out in rash
____ 35. Acne or pimples on face
____ 36. Acne/pimples other than face
____ 37. Boils
____ 38. Sweat even in cold weather
____ 39. Strong reactions to insect bites
____ 40. Headaches
____ 41. Feeling pressure in head
____ 42. Hot flashes
____ 43. Chills
____ 44. Dizziness
____ 45. Feel faint
____ 46. Numbness or tingling in any part of body
____ 47. Twitching of eyelid
____ 48. Twitching other than eyelid
____ 49. Hands tremble or shake
____ 50. Stiff joints
____ 51. Sore muscles
____ 52. Sore throat
____ 53. Sunburn
____ 54. Nausea

**SWBLSS**

Below are five statements that you agree or disagree with. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding.

| | | |
|---|---|---|
| 7 | = | Strongly agree |
| 6 | = | Agree |
| 5 | = | Slightly agree |
| 4 | = | Neither agree nor disagree |
| 3 | = | Slightly disagree |
| 2 | = | Disagree |
| 1 | = | Strongly disagree |

____ 1. In most ways my life is close to my ideal.

____ 2. The conditions of my life are excellent.

____ 3. I am satisfied with my life.

____ 4. So far I have gotten the important things I want in life.

____ 5. If I could live my life over, I would change almost nothing.

**MARLOWE CROWNE SCALE**

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you. Then circle T or F as appropriate for you.

T F 1. Before voting I thoroughly investigate the qualifications of all the candidates.
T F 2. I never hesitate to go out of my way to help someone in trouble.
T F 3. It is sometimes hard for me to go on with my work if I am not encouraged.
T F 4. I have never intensely disliked anyone.
T F 5. On occasion I have had doubts about my ability to succeed in life.
T F 6. I sometimes feel resentful when I don't get my way.
T F 7. I am always careful about my manner of dress.
T F 8. My table manners at home are as good as when I eat out in a restaurant.
T F 9. If I could get into a movie without paying and be sure I was not seen, I would probably do it.
T F 10. On a few occasions, I have given up doing something because I thought too little of my abilities.
T F 11. I like to gossip at times.
T F 12. There have been times when I felt like rebelling against people in authority even though I know they were right.
T F 13. No matter who I'm talking to, I'm always a good listener.
T F 14. I can remember "playing sick" to get out of something.
T F 15. There have been occasions when I took advantage of someone.
T F 16. I'm always willing to admit it when I make a mistake.
T F 17. I always try to practice what I preach.
T F 18. I don't find it particularly difficult to get along with loud-mouthed, obnoxious people.
T F 19. I sometimes try to get even, rather than forgive and forget.
T F 20. When I don't know something I don't at all mind admitting it.
T F 21. I am always courteous, even to people who are disagreeable.
T F 22. At times I have really insisted on having things my own way.
T F 23. There have been occasions when I felt like smashing things.
T F 24. I would never think of letting someone else be punished for my wrongdoing.
T F 25. I never resent being asked to return a favor.
T F 26. I have never been irked when people expressed ideas very different from my own.
T F 27. I never make a long trip without checking the safety of my car.
T F 28. There have been times when I was quite jealous of the good fortune of others.
T F 29. I have almost never felt the urge to tell someone off.
T F 30. I am sometimes irritated by people who ask favors of me.
T F 31. I have never felt that I was punished without cause.
T F 32. I sometimes think when people have a misfortune they only got what they deserved.
T F 33. I have never deliberately said something that hurt someone's feelings.

# Appendix C

Table C1

*Summary of Simultaneous Regression Analysis for Variables Predicting Physical Symptom Reporting in Females (n = 220)*

| Variable | $r^2$ | *SE B* | $\beta$ | |
|---|---|---|---|---|
| Negative Life-Events | 0.07 | 0.22 | -0.91 | *** |
| Positive Affect | | 0.25 | 0.19 | |
| Social Desirability | 0.07 | 0.40 | -1.71 | *** |

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

Table C2

*Summary of Simultaneous Regression Analysis for Variables Predicting Physical Symptom Reporting in Males (n = 151)*

| Variable | $r^2$ | *SE B* | $\beta$ | |
|---|---|---|---|---|
| Negative Life-Events | .07 | 0.27 | -0.91 | *** |
| Positive Affect | | 0.31 | 0.22 | |
| Social Desirability | .05 | 0.49 | -1.38 | ** |

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

Table C3

*Summary of Simultaneous Regression Analysis for Variables Predicting Physical Symptom Reporting Collapsed Across Gender (n = 375)*

| Variable | $r^2$ | *SE B* | $\beta$ | |
|---|---|---|---|---|
| Negative Life-Events | 0.07 | 0.17 | -0.94 | *** |
| Positive Affect | | 0.19 | 0.19 | |
| Social Desirability | 0.06 | 0.31 | -1.57 | *** |

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

Table C4

*Summary of Simultaneous Regression Analysis for Variables Predicting Satisfaction with Life in Females (n = 220)*

| Variable | $r^2$ | *SE B* | $\beta$ |
|---|---|---|---|
| Negative Life-Events | 0.10 | 0.05 | 0.28 *** |
| Positive Affect | 0.06 | 0.06 | 0.26 *** |
| Social Desirability | 0.02 | 0.10 | 0.22 * |

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

Table C5

*Summary of Simultaneous Regression Analysis for Variables Predicting Satisfaction with Life in Males (n = 151)*

| Variable | $r^2$ | *SE B* | $\beta$ |
|---|---|---|---|
| Negative Life-Events | 0.11 | 0.07 | 0.31 *** |
| Positive Affect | | 0.08 | 0.10 |
| Social Desirability | 0.06 | 0.12 | 0.40 ** |

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

Table C6

*Summary of Simultaneous Regression Analysis for Variables Predicting Satisfaction with Life Collapsed Across Gender (n = 375)*

| Variable | $r^2$ | *SE B* | $\beta$ |
|---|---|---|---|
| Negative Life-Events | 0.10 | 0.04 | 0.29 *** |
| Positive Affect | 0.03 | 0.05 | 0.19 *** |
| Social Desirability | 0.03 | 0.08 | 0.29 *** |

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

Table C7

*Summary of Simultaneous Regression Analysis for Physical Symptom Reporting Predicting Satisfaction with Life in Females (n = 221)*

| Variable | $r^2$ | *SE B* | $\beta$ | |
|---|---|---|---|---|
| Physical Symptom Reporting | 0.021 | 0.02 | -0.04 | * |
| Social Desirability | 0.041 | 0.11 | 0.34 | ** |

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

Table C8

*Summary of Simultaneous Regression Analysis for Physical Symptom Reporting Predicting Satisfaction with Life in Males (n = 152)*

| Variable | $r^2$ | *SE B* | $\beta$ |
|---|---|---|---|
| Physical Symptom Reporting | 0.027 | 0.02 | -0.04 * |
| Social Desirability | 0.058 | 0.13 | 0.40 ** |

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

Table C9

*Summary of Simultaneous Regression Analysis for Physical Symptom Reporting Predicting Satisfaction with Life Collapsed Across Gender (n = 376)*

| Variable | $r^2$ | *SE B* | $\beta$ | |
|---|---|---|---|---|
| Physical Symptom Reporting | 0.023 | 0.01 | -0.04 | ** |
| Social Desirability | 0.047 | 0.08 | 0.37 | *** |

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