CONFIRMATORY FACTOR ANALYTIC STUDY OF OPTIMISM AND NEGATIVE AFFECTIVITY

by

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ABSTRACT

Results from three related studies are reported. Study 1 describes the development of a new measure of optimism and pessimism (OP) that was designed to assess OP about seven different domains. Study 2 was designed to determine the convergent and discriminant validity of measures of OP and negative affectivity (NA) using confirmatory factor analysis. Study 3 was conducted to determine the relative utility of OP and NA in the prediction of self-reported health behavior.

The results of Studies 2 and 3 suggest that previous reports of the lack of discriminant validity between measures of OP and NA are supported. Utilizing confirmatory factor analytic statistical analysis lends stronger statistical support to the conclusions drawn by previous authors who utilized analyses based on partial correlations. Findings are discussed with reference to the utility of OP and NA in the prediction of a theoretically relevant outcome, namely, self-reported health behavior.
General Introduction

Expectancies, and related terms such as, optimism or pessimism (hereafter referred to as OP), have been suggested as useful constructs in the prediction of health and well-being (Carver & Gaines, 1987; O'Leary, 1985; Peterson & Bossio, 1991; Scheier & Carver, 1985, 1986, 1987, 1989; Strack, Carver & Blaney, 1987; Taylor, 1991). While health and well-being are eventual outcomes, it is thought that OP has its effect by increasing or decreasing the likelihood that an individual will engage in health-relevant behaviors such as, coping, adherence, help-seeking, persistence, and preventive or health maintenance behavior. Thus, the examination of constructs like OP may provide an important way of conceptualizing the link between cognition, behavior and health-relevant outcomes.

It is not surprising therefore, that OP plays a central role in several prominent psychological theories which have been utilized in the research concerning the role of personality factors and health: self-efficacy theory (Bandura, 1977); attributional style or human learned helplessness theory (Abramson, Seligman & Teasdale, 1978); and more recently, behavioral self-regulation or control theory (Carver & Scheier, 1981). Each of these theoretical perspectives defines, and measures OP differently. This makes the replication of previous empirical findings and
the direct comparison of these theories difficult.

Overview of the Present Studies

The three studies being reported in this paper were designed to address several related questions. Study 1 addressed the development of a new measure of OP. The rationale for the development of a new measure of OP is presented below. The goal of Study 2 was to replicate recent empirical findings and to extend our knowledge of the convergent and discriminant validity of both the new scale developed in Study 1, other popular measures of OP, and measures of negative affectivity (NA). NA (or neuroticism) has been suggested as an alternative interpretation of previous research findings related to OP (Smith, Pope, Rhodewalt & Poulton, 1989). Study 3 was designed to determine the relative predictive utility of measures of OP and measures of NA in the prediction of self-reported health behavior.

STUDY I: THE OPTIMISM AND PESSIMISM INVENTORY

Introduction and Rationale

As mentioned in the introduction to this paper, expectancies play a pivotal role in several prominent psychological theories. These expectancy-based theories state that prediction is enhanced when the level of specificity of the predictors (OP) matches that of the dependent variable. If the dependent variable of interest
is relatively specific, academic performance for example, then OP about academic performance would be the best predictor. If, however, the task is less specific, ambiguous, or novel, then more generalized OP will provide the best prediction (Fibel & Hale, 1978). In addition, writers of systems theory also state that emergent phenomena at one level cannot be predicted from any level above or below (Schwartz, 1984). Thus, if the phenomenon one wished to predict was at one level of a system, then one would need information about OP at that level. If health behavior was the phenomenon one wished to predict, then assessing OP about health would increase the predictive utility over more generalized expectancies. Finally, as Marshall, Wortman, Kusulas, Hervig & Vickers (1992), stated recently, "The partial independence of optimism and pessimism might also be due to whether people have proximal or distal goals in mind. A person might, for example, be pessimistic over the short run, but optimistic with respect to broader or more far-reaching outcomes."

Given what has been stated in theory, it seems conceivable that an individual might be optimistic about certain domains, (e.g., career), and pessimistic about some other domain, (e.g., health). Thus, the Optimism and Pessimism Inventory (OPI) was designed to assess OP about seven domains ranging from the personal domain, (i.e.,
questions about one's OP regarding career, health and personal "life orientation"), to questions reflecting more distal events such as other people, politics and the environment.

The two other popular measures of OP, the Life Orientation Test (LOT) (Scheier & Carver, 1985) and the Generalized Expectancy for Success Scale (GESS) (Fible & Hale, 1978) were designed to tap different aspects of OP. The former was designed to tap global expectancies while the latter was designed to tap expectancies about more specific events. When the GESS was developed, however, the authors failed to find evidence for separate factors reflecting different domains. The GESS formed a single unidimensional scale (Fibel & Hale, 1978).

Therefore, the measure developed in Study 1 was designed to address both the specificity required by expectancy-based theories and, to provide insight into whether ratings about proximal or distal events are differentially useful in the prediction of selected dependent variables. A measure such as OPI should allow one the flexibility, using a single measure, to estimate the impact of OP about different content domains which vary along a continuum from proximal to distal events.

**Method**

**Subjects**
Data for studies 1, 2 and 3 were obtained from undergraduate students enrolled in Introductory Psychology classes at the University of Arizona. Each participant was given three credits toward the completion of their research participation credits. There were 217 females and 95 males in the sample.

Procedure

Data were collected in group sessions. The study was described to the participants and the questionnaire packets and answer sheets were distributed. All participants filled out all of the questionnaires which required approximately one hour and fifteen minutes to complete. Two forms of the questionnaire packets were administered to reduce the likelihood of any order effects. Finally, the participants were given a written debriefing form after they completed the questionnaires.

Measures

The first step in constructing the Optimism and Pessimism Inventory (OPI) was to generate a pool of items that would assess optimism about seven domains: personal/life in general; career; health; other people; the environment; systems; and the world. Items were developed based on three considerations: the items had to have face validity for their respective domains; there should be an equal number of positively worded and negatively worded
statements; and some of the items should reflect "unrealistic" optimism and pessimism. This final consideration was intended to reduce the possibility of a ceiling effect, given what has been shown previously as a bias toward responding in the optimistic direction (Weinstein, 1980; Taylor, 1991).

The initial pool, consisting of 105 items, was divided into the seven domains as follows: personal=37; career=12; health=16; others=10; environment=10; systems=10; world=10. These numbers include the items that were worded in an extreme or "unrealistic" manner.

Respondents were asked to indicate the extent to which they agree with each of the items using the following response format: 5=strongly agree; 4=agree; 3=neutral; 2=disagree; 1=strongly disagree. Additional instructions asked respondents to indicate how they usually think or feel, and to use the "neutral" response as little as possible. Finally, items worded in the negative directions were reverse-coded before scoring.

Results

Final Psychometric Properties

The items that were intentionally worded in an extreme manner were consistently poorly correlated with other items in their respective subscales. When these extreme items were condensed into their own subscale, it was also poorly
correlated with the other subscale scores. Since these items were constructed to be different from the other items, this result was anticipated. These items, and the subscale they formed, therefore, were dropped from any further analyses.

The final version of the OPI consists of 89 items. The final number of items in each of the subscales are as follows: personal=26; career=11; health=13; others=9; environment=10; systems=11; world=9. Each of the subscales contains approximately equal numbers of items worded in a positive direction and those worded in the negative direction.

**Confirmatory Factor Analysis.** A confirmatory factor analysis was conducted on the seven conceptually derived subscales. This type of analysis was chosen because inspection of zero-order correlations, (i.e., correlations among measured variables), can lead to inaccurate conclusions about latent structure (Bollen & Lennox, 1991). The generalized least squares estimation method was chosen because two of the subscales (systems and world) were not normally distributed. The variance of the latent variable was set at unity, and the error terms from the personal and career subscales were allowed to correlate in order to identify the model.

A model representing a single latent variable
underlying the seven subscales (see Figure 1 which shows each subscale's loading on the latent variable and the estimates of the measurement error associated with each subscale, Appendix E) was selected a priori. This model provided a good fit to the data (chi-square (13) = 48.06, p < .001; NFI = .989; CFI = .991).

Norms and Descriptive Statistics. The mean, standard deviation and Cronbach's alpha for each of the seven subscales are reported in Table 1 (Appendix A). There is no floor or ceiling effect on any subscale. As stated above, the systems and world subscales are not normally distributed (\textit{/w/} > .05).

Internal Consistency. Since this scale is not unidimensional in nature, therefore computing item-total correlations for the whole scale would be inappropriate. The corrected item-total correlations of each item to its respective subscale total with the item removed, are reported in Table 2 (Appendix B). The alpha with the item removed is also included. The item-total correlations for each of the subscales were computed and shown to be stable across male and female participants, split halves of the sample, and the two forms of the questionnaire that were administered.

Discussion

The a priori design which included items designed
to tap seven domains has been supported. The OPI scale has acceptable psychometric properties. Further testing and revision of the scale should be conducted using samples other than college students to determine whether the scale is sound in these samples. In addition, shorter versions of the scale should be constructed and tested so that future studies can utilize fewer items while maintaining acceptable psychometric properties. Convergent and discriminant validity, as well as predictive utility will be discussed in Study 2 and Study 3 respectively.

STUDY II: CONVERGENT AND DISCRIMINANT VALIDITY

Introduction

Although OP as a psychological construct has gained popularity, recent evidence suggests that a more careful consideration of it's validity as a unique construct, and any conclusions drawn from studies using optimism, is warranted.

Specifically, negative affectivity (NA), which is thought to represent a tendency for some individuals high on this trait to report greater amounts of negative experiences, may be particularly influential in symptom reporting and other measures of distress (Costa & McCrae, 1985, 1987; Watson & Clark, 1984; Watson & Pennebaker, 1989). These types of self-report instruments have been used as the dependent measures in the validation of Scheier
& Carver's (1985) instrument, the Life Orientation Test (LOT). Recently, negative affectivity has been advanced as an alternative explanation for individual differences previously attributed to optimism (Smith, Pope, Rhodewalt, 1989). Another recent study has suggested that the LOT affords no increase in explanatory power over measures of negative affectivity (Robbins, Spence & Clark, 1991).

Thus, it is not surprising that it has been suggested that OP is not discriminable from negative affectivity (NA) (Smith, Pope, Rhodewalt, and Poulton, 1989) and moreover, that future studies involving health, well-being or symptom reporting should focus on the role of negative affectivity and it's potential impact on these outcomes. Or, if symptom reports are to be used as a dependent variable of interest, NA should at least be measured so that it can be statistically controlled before any other predictors are considered.

The present study proposes a direct test of the discriminability of these traits (OP and NA) using the confirmatory factor analytic statistical technique (CFA) (Widaman, 1985). This technique was originally designed to provide an extension and improvement of the multitrait-multimethod (MTMM) methodology put forth by Campbell & Fiske (1959). MTMM is simply using two or more measures (different methods) to measure two or more traits. Explicit
in this methodology is the conceptualization of every item as a trait-method unit. That is, each item has some variance attributable to the trait being measured, plus some variance which belongs to the particular method being used.

In addition, according to Campbell & Fiske (1959), through the generation and examination of the MTMM correlation matrix a particular pattern of correlations is said to provide evidence of both convergent and discriminant validity. Specifically, correlations between measures of similar constructs, assessed by both similar and dissimilar methods, should be larger than those between different constructs whether or not the method was the same.

The application of this method, while an important contribution to the field of psychometrics, can prove problematic. First, the examination of a large number of correlations, such as will be generated in this study, can be strenuous to the eyes. Second, the determination of "larger than" is open to interpretation and does not provide the kind of standardized solutions one would like. The innovation of the confirmatory factor analytic statistical technique (CFA; Widaman, 1985) provides several advantages over the examination of a zero-order correlation matrix.

First, CFA results in explicit, easily interpretable estimates of convergent and discriminant validity. CFA allows for the construction of latent variables which
explicitly quantify the amount of trait variance the measured variables share, while disattenuating those variables of measurement error. Thus, one achieves a more pure estimate of the amount of "trait" in each of the measures. Zero-order correlations cannot provide such an estimate because the sources of variance in them are not explicit. One then obtains evidence of convergent validity by examining the parameter estimates or "loadings" of each of the measures on the latent variable. Finally, one can examine the covariation between the latent variables to determine whether there is evidence for discriminant validity.

Second, in this technique, parameter estimates can be generated to represent both trait and method variance. These parameter estimates can then be used in hypothesis testing. Although the design of Study 2 will not permit a strong test of such a hypothesis, one plausible hypothesis is that measures of OP and NA may lack discriminant validity in part due to shared method variance. Since the measured variables in Study 2 all share similar sources of variance (self-report, paper and pencil format, same experimenter and room, etc.), they are considered the same method and thus, Study 2 is not a pure MTMM design. If, however, the data from Study 2 were to support a three factor CFA solution (two trait latent variables and one method latent variable)
and the pattern of the loadings were interpretable, this might suggest some evidence of shared "method variance". An a priori model representing such a solution will be tested in Study 2.

Third, the structural equations modeling that can be employed in CFA is able to model the relationship between two hypothetical constructs such as OP and NA and some dependent variable (which would also take the form of a latent construct). These hypothetical constructs are generated from the measured variables and are disattenuated of measurement error. Thus, CFA provides insight into the relationships between latent constructs, which is what is typically of interest in psychology. Study 3 will utilize this technique to model the relative predictive utility of OP and NA in the prediction of self-reported health behavior.

Finally, using CFA allows one to test for the existence of higher-order factors that may suggest an explanation for the lack of discriminability of constructs such as OP and NA that has been suggested in previous studies.

To summarize, CFA will be used in Study 2 to test for the discriminant and convergent validity of OP and NA; model the relationship of the latent variables OP and NA after accounting for error variance in the measures; and finally, consider the existence of a higher-order factor that could
explain the lack of discrimination (if there is evidence for it) of these constructs.

**Method**

**Subjects and Procedures**

The subjects and procedures have been described previously in Study 1.

**Measures**

**Optimism and Pessimism**

Optimism and Pessimism Inventory (OPI) is the new self-report instrument developed in Study 1.

Life Orientation Test (LOT) (Scheier & Carver, 1985) is the most widely used measure of optimism which these authors define as generalized expectancies for good outcomes. Internal consistency (Cronbach’s alpha=0.76) and test-retest reliability (0.79) is considered adequate. Convergent and discriminant validity were reported by the authors as adequate, but as described earlier, the discriminant validity has recently been questioned with regard to negative affectivity (Smith, Pope, Rhodewalt & Poulton, 1989). Moreover, the LOT has been used in several studies to predict health-related and academic outcomes with some success (Scheier & Carver, 1985, 1987, 1989; Strack, Carver & Blaney, 1990; Robbins, Spence and & Clark, 1991).

Therefore, this measure is thought to have good predictive validity.
There are 12 items in this inventory. Four optimistically phrased items, 4 pessimistically phrased items and 4 "filler" items. The format is a five point Likert scale with 0 corresponding to "strongly disagree" and 4 to "strongly agree". The pessimistically phrased items are reverse-coded and the responses to the eight items are summed to result in an overall optimism score.

Attributional Style Questionnaire (ASQ) (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982) is a measure of attributional style which has been hypothesized to be a determinant of optimism (Seligman, 1991). Respondents are asked to imagine vividly some predetermined life events and then to respond to three standard statements using a seven point Likert scale. The statements being rated are designed to tap the three facets of attributional style: locus; stability; and globality. They ask whether the individual was the cause for the event or if it was due to other circumstances (internal vs. external locus); if this cause will always be present or if it was transient (stable vs. unstable); and if the cause influences many situations in the person's life or just this situation (global vs. specific).

The authors have reported modest internal consistency with Cronbach's alphas ranging from .44 to .69, and good test-retest reliabilities. This instrument has been used
successfully in many prospective studies (see Peterson & Bossio, 1991; for a review), in varied contexts, and thus, is thought to have construct validity.

The Generalized Expectancy for Success Scale (GESS) (Fibel & Hale, 1978) most closely approximates the new measure developed in Study 1 (the OPI) in that it attempts to measure expectancies in different content domains. It is a thirty item, self-report questionnaire which asks participants to respond on a five-point Likert scale with anchors corresponding to "highly probable" and "highly improbable".

Internal consistency (Spearman-Brown split-half reliability for odd and even numbered items= .90) and test-retest reliability (.83) are good. There was some evidence of discriminant validity. The authors found, however, that factor analysis revealed that the scale was unidimensional in nature. Thus, they concluded that there was no evidence for the different factors which were expected to reflect the different content domains that this measure was originally designed to assess.

Negative Affectivity

Beck Depression Inventory (BDI) (Beck, A.T., Ward, C.H., Mendelson, M., Mock, J. & Erbaugh, J., 1961) is a 21-item test presented in a standard 4-point (0-3) multiple choice format. Each of the items is said to reflect the
presence and depth of depressive symptomology. An individual's score is the sum of their responses to the 21 items. The higher the score the more severe the depressive symptoms.

Internal consistency (.86) and Spearman-Brown reliability (.93) have been shown to be good. Test-retest reliability is said to correlate well with the existence of depressive symptoms.

Most recently, however, the BDI has been shown to be virtually indistinguishable from measures of anxiety and may best be thought of as a measure of NA (Tanaka-Matsumi & Kameoka, 1986; Watson & Clark, 1984). The lack of discriminant validity is problematic for differentiating anxiety and depression but, is an ideal measure for NA which has components of both.

Brief Symptom Inventory (BSI) (Derogatis, L.R. & Melisaratos, N., 1983) is a 53-item short-form of the SCL-90. The BSI yields the same nine primary symptom dimensions and three global indices of distress as the SCL-90. The nine symptom dimensions include: somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, psychoticism, paranoid ideation, and hostility.

The depression, anxiety and hostility dimensions were utilized in this study to reflect the core dimensions of
negative affectivity. Scores on the BSI correlate 0.92-0.99 with those on the SCL-90. Internal consistency (alphas range from .71 to .85) and reliability (test-retest coefficients range from .68 to .91) are considered respectable for symptom measures.

Manifest Anxiety Scale (MAS) (Taylor, 1953) is a 28-item inventory which contains rewritten MMPI items judged by clinicians to reflect anxiety symptoms. Respondents are asked to indicate whether they experience the symptoms of anxiety using true for presence of the symptom, and false if they do not experience the symptom. Test-retest reliability is adequate (.88).

This scale is included in the present study as it is a popular measure of negative affectivity. In addition, it was included in an attempt to replicate and extend the recent findings regarding the need to discriminate measures of OP from measures of NA, and to determine how the lack of discriminability might affect the interpretation of an individual’s score on the LOT and other measures of optimism (Smith, Pope, Rhodewalt and Poulton, 1989; Robbins, Spence & Clark, 1991).

State-Trait Anxiety Inventory (A-trait form) (Speilberger, C.D., Gorsuch, R.L. & Lushene, R.E., 1970) contains 20 items which were selected from an original pool of 177 items from other anxiety inventories (Taylor’s MAS,
the Welsh Anxiety Scale and the IPAT Anxiety Scale). The instructions ask participants to respond to the 20 statements according to how they "generally feel". The inventory uses a 4-point Likert scale with possible responses corresponding to "almost never", "sometimes", "often", "almost always".

Total trait anxiety scores are achieved by summing the participant's responses to the 20 items. Since the inventory contains "anxiety present" items as well as "anxiety absent" items, the latter type of items must be reverse-coded before obtaining the final score. The higher the final score, the higher the participant's level of trait anxiety.

Internal consistency (coefficient alpha= .89 to .91) is good, and test-retest reliability coefficients range from .65 to .86, depending on the interval between administrations. Factor analyses yield either one or two factors. The two factor solution yields a factor for the "anxiety present" items and one for the "anxiety absent" items. This inventory was included in Study 2 in an attempt to partially replicate the findings of Robbins, Spence and Clark (1991) and for the reasons stated above.

Health Behavior Scale (from the Stress Assessment Profile's Lifestyle section) (Nowack, K., 1990)

This scale was included to provide an estimate of the
dependent variable of interest in Study 3, self-reported health behavior. The HBS includes 25 items assessing self-reported health behaviors ranging from the amount of exercise a person gets, to whether they monitor their dietary fat intake, to their sleep habits. The internal consistency (alpha=.82) is acceptable. The HBS has been used extensively to monitor changes in health behavior after a lifestyle change program and has demonstrated good criterion validity.

Results

Scale Intercorrelations. The correlation matrix which includes all measures is presented in Table 3 (Appendix C). This matrix is included as suggested by the original Campbell and Fiske, (1959) method. The correlations are generally as would be expected. The OP scales generally correlate more highly with one another than with the NA scales, and likewise, the NA scales tend to correlate more highly with one another than with the OP scales. Of interest to the development of the OPI, several of it's subscales show lower correlations with the NA scales than do the LOT and the GESS.

As stated earlier, the interpretation of zero-order correlations, especially with many measures, is problematic. These correlations were, therefore, submitted to a confirmatory factor analysis using the EQS program.
(Bentler, 1989).

**Confirmatory Factor Analytic Structural Equations Models.** Three a priori models were tested, each of which will be discussed in turn.

First, a single factor model was constructed in which all of the measured variables were allowed to load on one latent variable. This model was designed to determine if Smith et al.'s (1989) proposition that OP is "nothing more than" NA would be supported. This model provided a good fit to the data (chi-square (150)=279.21, p<.001; NFI=.989; CFI=.995). This model does not, however, explicitly quantify specific sources of variance (as do the other two models presented below) and one would be premature in accepting this model and its attendant interpretation without testing competing models.

The second model was one in which two latent variables were constructed to represent OP and NA. The measured variables that made up the OP latent variable were: the seven OPI subscales; the LOT; the GESS; and the six ASQ subscales. The measured variables that made up the NA latent variable were: the BDI; the BSI depression, anxiety and hostility subscales; the TMAS, and the A-Trait scales.

The generalized least squares estimation method was chosen because several of the subscales were not normally distributed. The variance of the latent variables were
fixed at unity and the error terms of each of the subscales belonging to the same measure (OPI, ASQ and BSI) were allowed to correlate in order to identify the model. Figure 2 (Appendix F) shows the loadings of each of the measured variables on it's respective latent variable, as well as the estimate of the measurement error associated with that scale. This a priori model provides a good fit to the data (chi-square (149)=257.21, p<.001; NFI=.990; CFI=.996). The correlation between these two latent variables is .87.

A third a priori model was constructed to represent both the OP and NA latent variables, as well as a latent variable which represents method variance. This model should be interpreted cautiously because, as described in the introduction, the design of this study does not support a strong interpretation of a method latent variable.

The estimation method was again generalized least squares for the reason mentioned above, and the variances of the latent variables were all fixed at unity, and the same error terms were allowed to correlate in order to identify the model. The OP and NA latent variables were allowed to covary, but the latent variable representing the method factor was not allowed to correlate with the trait factors (Widaman, 1985). This model also provided a good fit to the data (chi-square (233)=335.53, p<.001; NFI=.989; CFI=.996). The correlation between the OP and NA latent variables
with the third latent variable in the model, rose to .97.

The pattern of the signs of the significant loadings of the measured variables on the "method" latent variable were as follows: all of the loadings of questionnaires scored to represent "good things" about a person (optimism and positive events) were negative; and all of the questionnaires that represent "bad things" about a person (anxiety, depression, hostility and negative events) were positive. This pattern lends some support to the interpretation of this as a latent variable representing method variance, or more specifically, a self-enhancing reporting style.

Discussion

The statistical procedures employed by Smith et.al. (1989) and Robbins, Spence and Clark (1991), (i.e., those based on partialling the variance of zero-order correlations), proves to be problematic for two reasons. First, no measure is a perfect representation of the construct of interest, there is always measurement error. Second, these measures may share a certain amount of method variance as evidenced by the fit of the model containing a third latent variable. Although, this study cannot provide strong evidence of a "method" latent variable, the pattern of the signs on the loadings is suggestive of the well-known self-serving bias present whenever self-report data are
Without explicitly quantifying all the potential components of shared variance and then interpreting the lack of variance left in LOT scores after partialling NA scores using zero-order correlations of measured variables, one might draw unwarranted conclusions. Smith, et.al. (1989), for example, concluded that, "At the present time, it is probably best to view the previously established... correlates of optimism as actually reflecting the more pervasive, established personality dimension of neuroticism." (pg., 646).

The data from this study supported a model in which both OP and NA latent variables were present. These two latent variables were highly correlated. This result does suggest that there is a lack of discrimination between measures of OP and NA. This result does not, however, mean that the two constructs are completely redundant. Important information might be lost if both constructs were not utilized, especially when they display different predictive utilities (as will be described in Study 3).  

Another consideration when deciding on the utility of a construct (and measures of that construct), is whether it is useful (i.e., significant) in the prediction of desired outcomes. It is essential to determine if OP provides any additional explanatory power above that of NA. Study 3 will
explore the relative utility of both OP and NA in the prediction of self-reported health behavior.

STUDY III: THE PREDICTION OF HEALTH BEHAVIOR

Introduction

Self-reported health behavior was chosen as the dependent variable for Study 3 because it represents an outcome that is relevant to self-regulation theory (Carver & Scheier, 1981, 1982, 1989) as well as other expectancy-based theories. Self-regulation theory predicts that optimistic individuals are more likely to engage in, and persist at, effortful behavior that is aimed at the reduction of a perceived discrepancy between a person's present state and some goal. Given the current popular focus on preventive health behavior it is expected that most individuals will be aware of some discrepancy between their current behavior and the "ideal". Thus, according to this theory, OP may provide an important predictor of self-reported health behavior.

In addition, several authors in the area of personality and health have noted the need to select outcome measures that may be less confounded with NA than symptom reports (Costa & McRae, 1987; Holyroyd & Coyne, 1987; Smith, et.al., 1989; Watson & Pennebaker, 1989). Although the dependent variable chosen for Study 3 is still self-report in nature, it asks about health behavior rather than the subjective experience of physical symptoms. Thus, this outcome measure
may be less confounded with NA. The relative predictive utility of both OP and NA, as latent variables, will be tested directly in this study.

**Method**

*Subjects and Procedures*

The subjects and procedures are the same as those presented in Study 2.

*Measures*

The measures used in Study three are the same as those described in the measures section of Study 2.

*Results*

**Exploratory Factor Analysis of the Health Behavior Scale**

Exploratory factor analysis of the Health Behavior scale revealed five factors accounting for 100% of the variance: exercise, diet, maintenance, drugs, and risk.

The first two factor names are self-explanatory the other three require some comment. The maintenance factor includes items assessing sleep habits, relaxation, maintaining body weight and taking vitamins or medications as prescribed by a physician. The drug factor includes items assessing the use of both illicit and prescription drugs as well as alcohol and tobacco. The factor called risk includes items that assess whether the individual practices safe sex, rests and avoids contact with others when ill or eats "junk food". Somewhat surprisingly, only
factors 2 and 3 (diet and maintenance) and factors 1 and 5 (exercise and risk) are moderately correlated (0.42 and 0.34 respectively). The rest of the scale intercorrelations are small. Thus, these five factors were treated as separate dependent variables in the multiple regressions reported below.

Multiple Regressions using OP and NA as predictors of Self-reported Health Behavior Five exploratory multiple regressions were conducted using the five health subscales mentioned above (exercise, diet, maintenance, drugs and risk) as the dependent variables. All possible predictors, (i.e., all OP and NA scales), were entered and a forward stepping procedure was utilized. Any predictor attaining a beta weight that is significant at the p<.01 level will be reported. These analyses were conducted in this exploratory manner in order to determine whether the OP scales, NA scales, or some combination would result in the best prediction of self-reported health behavior.

The predictors of self-reported exercise behavior were: OPI-other (0.19, p<0.02); OPI-system (0.18, p<0.03); and a trend towards the inclusion of OPI-world (-0.11, p<0.09). These three predictors accounted for 5% of the variance (R-square = .05).

The predictors of self-reported diet behavior were: GESS (0.21, p<0.004); BSI-hostility (-0.13, p<0.01);
and a trend toward the inclusion of OPI-system (0.12, p<0.10). These three predictors accounted for 9% of the variance (R-square = .09).

The predictors of self-reported maintenance behavior were: BDI (-0.52, p<0.001); A-Trait (-0.23, p<0.005); and a trend toward the inclusion of OPI-system (0.11, p<0.06). These three predictors accounted for 25% of the variance (R-square = 0.25).

The predictors of self-reported drug use included: BDI (-0.17, p<0.06); ASQ-stable, negative events (-0.05, p<0.07); and BSI-hostility (-0.07, p<0.08). These three predictors account for 6% of the variance (R-square = 0.06).

The predictors of self-reported risk behavior include: OPI-health (0.17, p<0.01); and GESS (0.13, p<0.03). These two predictors account for 5% of the variance (R-square = 0.05).

As can be seen in the results reported above, the amount of variance accounted for by the measured variables representing OP and NA is low. Therefore, given the difficulties of using measured variables to draw conclusions about the relationships of latent variables, a confirmatory factor analytic structural equations modelling procedure (CFASEM) was employed (reported in the final section of the results).

Confirmatory Factor Analysis of Self-Reported Health
Behavior Confirmatory factor analysis failed to support the a priori model representing a single latent variable for health behavior. Therefore, given the pattern of significant predictors that emerged in the multiple regressions, a model representing two latent variables for self-reported health behavior was constructed.

The generalized least squares method of parameter estimation was chosen given that the maintenance subscale is not normally distributed. The variance of the two latent variables was set to unity, and the error terms from the exercise and diet subscales were allowed to correlate in order to identify the model.

The first latent variable includes the exercise, diet and risk subscales of the HBS. These three subscales can be said to reflect self-reported health behaviors that are relatively more effortful than those included in the second latent variable. The second latent variable includes the maintenance and drug subscales described in the exploratory factor analysis section above. This model provided a good fit to the data (chi-square (3) = 5.45, p = 0.14; NFI = 0.997; CFI = 0.999). The latent structure and the estimates of measurement error is pictured in Figure 2 (Appendix F). Estimates of each of the subscale's loading on it's respective latent variable can be found in Table 4 (Appendix D).
Confirmatory Factor Analytic Structural Equations Model

The final CFASEM represents the relationship of OP and NA and their relative contributions to the prediction of the two self-reported health behavior latent variables (see Figure 3, Appendix G). The estimation method was generalized least squares. The variance of the OP and NA latent variables and the disturbance terms were set to unity and the error terms from the OPI, ASQ, BSI, exercise and diet subscales were allowed to correlate in order to identify the model.

This model provides a good fit to the data (chi-square (254)=407.20, p<.001; NFI=.986; CFI=.995). The measurement, construct equations, and their associated z-tests for significance (comparable to a t-test; i.e., 1.96 corresponds to p<.05) are displayed in Table 4 (Appendix D). Figure 4 (Appendix H) shows the relationship between the constructs and includes the path coefficients which are estimates of the strength of the OP and NA latent variables as predictors of the two latent health behavior variables.

Discussion

The results of the CFASEM analysis suggest that neither OP nor NA provides a good predictor of the self-reported exercise, diet or risk (effortful) health behavior variables. While this result is somewhat disappointing with regard to OP, it is encouraging with regard to NA. This
result suggests that self-reported, effortful, health behavior is a dependent variable that is less confounded with NA than are symptom reports which have been used, and criticized in previous studies. NA was a significant predictor for the second self-reported health behavior variable which represents somewhat less effortful behaviors. Thus, distinguishing between the types of self-reported health behavior gives some insight into the differential predictive utility of OP and NA. These results suggest that self-reported health behavior may provide a useful, theoretically relevant, and pragmatically important outcome measure for future studies concerning personality and health.

While the amount of variance in health behavior explained by both OP and NA was low, an interesting pattern of results emerged in the regression analyses. Namely, OP measures seem to emerge as the important predictors of relatively effortful behavior like exercise, attending to one’s diet and avoiding risky behavior. While the z-statistic for the parameter estimate associated with OP’s prediction of effortful health behavior (see Table 4) did not reach significance; it’s size relative to that of NA is consistent with these results. NA measures, on the other hand, emerged as better predictors of less effortful behaviors like sleep and drug use.
These results provide some tentative support of the predictions made by self-regulation theory (Carver & Scheier, 1985, 1987, 1989, 1992). Namely, that individuals who are relatively more optimistic will engage in more active efforts at discrepancy reduction, such as positive health behavior. This pattern of results is worth further articulation and consideration in future studies.

General Discussion and Conclusions

The findings of the studies reported here are relevant not only to the study of optimism and pessimism, but to the field of personality and health more generally. It has been noted that the research in the field of personality and health suffers from methodological problems (Krantz & Hedges, 1987). Moreover, new constructs are added to the taxonomy of personality factors thought to influence health without careful consideration of the existence of other established personality factors, or to the need for discriminant validity (Holyroyd & Coyne, 1987; Smith, et.al.,1989; Marshall, et.al., 1992). In addition to convergent and discriminant validity, the predictive utility of any new measure or construct should be well established before concluding that it is a useful addition to the field. Although this theory-driven process can be complicated and time consuming, it is essential to determine that we are not merely engaging in the "re-naming phenomenon" when
presenting a new measure or construct.

The studies presented here have reported such a process with regard to measures of optimism and negative affectivity. The measure developed in Study 1 was subjected to this process and demonstrated reasonably sound psychometric properties. Most at issue in Study 2 was the discriminant validity of the new measure (as well as other measures of OP) with regard to NA. Several of the subscales of the OPI were less correlated with the NA measures, which is promising. The results of the CFA containing all of the measures do not, however, bode well for the discriminant validity of the OP and NA constructs more generally.

The results of Study 3, especially with regard to the dependent measure are encouraging, in that the health behavior measure appears to be less confounded with NA. Yet, the predictive utility of OP with self-reported health behavior was poor. Thus, the search for useful constructs in the prediction of self-reported health behavior must continue.

The results of these studies must be interpreted cautiously however, due to several methodological limitations. First, the data are correlational in nature and therefore, no determination of causal influences can be established. Second, the data were all collected using self-report questionnaires which are known to suffer from
biases such as the self-presentational bias. Additional methods of data collection, like reports made by other people about the participant's level of OP or NA, would have helped to establish a complete MTMM matrix. Having a more complete MTMM matrix could then give some insight into the possibility of method factors and shed some light on their potential influence on the results reported in studies 2 and 3. The data were all collected on relatively young, high-school and college educated individuals. Further studies utilizing different samples would be needed to determine if these findings are robust. Finally, some measure of positive affect may have provided additional information with regard to the convergent and discriminant validity of OP and affect more generally. Recent evidence suggests that optimism and pessimism may not be merely opposite ends of a continuum, but rather separate dimensions (Marshall, et.al., 1992). Similar results have been reported with regard to positive and negative affect.

Future studies could provide stronger tests of the theories mentioned earlier, such as self-regulation/control theory (Carver & Scheier, 1981, 1985, 1987, 1992) by experimentally manipulating levels of optimism and using multiple outcome measures. In the area of personality and health, one could observe actual health behavior, and/or effort or persistence in health behavior change efforts as
an outcome measure rather than just self-report data. Also, as mentioned above, reports made by other individuals about the research participant could further enhance the methodological rigor of future studies in the area of personality and health.

In conclusion, the implications of these studies for future research in the area of personality and health include: the need for careful consideration of the convergent and discriminant validity and predictive utility of new measures/constructs; increased methodological rigor, especially experimental studies utilizing critical multiplist strategies; and perhaps, a unified model of personality that accounts for previous empirical results related to OP, NA, extraversion, coping, hardiness and any number of other concepts, in a more parsimonious fashion.
### APPENDIX A

Table 1

Means, standard deviations and Cronbach's alpha for the seven OPI subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Mean</th>
<th>S.D.</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career</td>
<td>3.94</td>
<td>0.56</td>
<td>0.80</td>
</tr>
<tr>
<td>Environment</td>
<td>3.54</td>
<td>0.62</td>
<td>0.74</td>
</tr>
<tr>
<td>Personal</td>
<td>3.74</td>
<td>0.47</td>
<td>0.85</td>
</tr>
<tr>
<td>Health</td>
<td>3.73</td>
<td>0.48</td>
<td>0.67</td>
</tr>
<tr>
<td>Others</td>
<td>3.68</td>
<td>0.51</td>
<td>0.56</td>
</tr>
<tr>
<td>System</td>
<td>3.19</td>
<td>0.52</td>
<td>0.65</td>
</tr>
<tr>
<td>World</td>
<td>3.13</td>
<td>0.65</td>
<td>0.75</td>
</tr>
</tbody>
</table>
**APPENDIX B**

**Table 2**

Item–Total correlations with the item removed and Alpha with item removed

<table>
<thead>
<tr>
<th>Subscale Name</th>
<th>Item</th>
<th>Item-Total Alpha</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal / Life:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I expect life to be good to me.</td>
<td>0.45</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Nothing will ever work out for me.</td>
<td>0.58</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I look forward to new challenges.</td>
<td>0.35</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I expect tomorrow to bring many difficulties and few rewards.</td>
<td>0.59</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>I will never experience success.</td>
<td>0.40</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I do not look forward to the future.</td>
<td>0.48</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>A bright future awaits me.</td>
<td>0.57</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Things don’t usually go my way.</td>
<td>0.52</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I expect life to be a constant struggle.</td>
<td>0.46</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I don’t plan for the future.</td>
<td>0.36</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I expect to be happy most of the time.</td>
<td>0.56</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Someone &quot;up there&quot; doesn’t like me.</td>
<td>0.40</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I will succeed at everything I try.</td>
<td>0.21</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>I expect my life to be one hardship after another.</td>
<td>0.49</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I will always feel good about my life.</td>
<td>0.44</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I never expect to achieve anything.</td>
<td>0.44</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I expect to &quot;lose&quot; at everything.</td>
<td>0.45</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Sometimes I feel I lead a &quot;charmed life&quot;.</td>
<td>0.30</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Every time I set out to accomplish a goal, something gets in my way.</td>
<td>0.50</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I will always have doubts about the future.</td>
<td>0.32</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Why bother?</td>
<td>0.38</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I expect to accomplish most of the projects I undertake.</td>
<td>0.??</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whenever I try to do anything, it seems there are many obstacles I must overcome.</td>
<td>0.40</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>I often wake up looking forward to what the day will bring.</td>
<td>0.48</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>My life plans will proceed without</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- Item correlations range from 0.21 to 0.59.
- Alpha values range from 0.85 to 0.86.
- Higher item correlations and Alpha values indicate stronger internal consistency and reliability.

**Source:**
- The data presented in this table is based on a psychological instrument measuring optimism and pessimism. The item-total correlations and Alpha values are used to assess the reliability of the subscales within the instrument.
a "hitch".  
I always expect obstacles that
cannot be overcome.

Optimistic Items = 10  Pessimistic Items = 16

Health:

Getting old means getting ill.  
I will stay healthy most of my life.  
I can keep myself well.  
I know I will end up with cancer  
I know I will get a catastrophic illness.  
Cancer is a death sentence.  
There is nothing one can do to avoid illness.  
Most major illnesses can be prevented.  
I know they will find a cure for AIDS in my lifetime.  
Medicine will never find a cure for AIDS.  
The proper diet can prevent many illnesses.  
No matter how much exercise one does, it will not prevent illness.

Optimistic Items = 5  Pessimistic Items = 7

"Others" / Friends / Relatives:

It is better not to rely on friends for anything you really need.  
I don't expect much from others.  
I find that most people have something unique to contribute to my life.  
I know my family will be there for me when I need them.  
Most people do not have my best interests in mind.  
I expect most people to be friendly or benevolent.  
I can rely on my family for the things I really need.  
I know my friends will always be there for me when I need them.  
I know I will always have good friends.

Optimistic Items = 6  Pessimistic Items = 3
**Work / Career:**

I expect my work or career to be rewarding. 0.58 0.80
I know I will have a satisfying career. 0.63 0.80
My work will always be fulfilling. 0.38 0.82
I will advance rapidly in my career. 0.44 0.81
My work will be very well known in my field. 0.47 0.81
My work will be sheer drudgery. 0.42 0.81
I will always be just another "cog in the machine". 0.52 0.80
I will always be someone else's "pee-on". 0.49 0.81
My work will never amount to anything. 0.54 0.80
I will not advance in my career. 0.50 0.81

Optimistic Items = 5  Pessimistic Items = 5

"The System":

Most of the time "the system" can be helpful. 0.38 0.65
The political system, our democracy, is set up with the taxpayers interests in mind. 0.31 0.66
It doesn't pay to get involved. 0.13 0.71
The system is designed to protect people. 0.46 0.63
The system will respond to input from the people. 0.37 0.65
The future of our systems is on shaky ground. 0.29 0.66
As far as the system goes, things are going to get worse. 0.49 0.63
Many of our systems, like Social Security, are going to fail in the near future. 0.30 0.66

Optimistic Items = 4  Pessimistic Items = 4

**The Environment:**

Nothing we can do will save the environment. 0.35 0.76
I believe we can clean up the earth. 0.58 0.73
We will be able to clean up the environment. 0.66 0.72
We will be able to save many of the
endangered species. 0.29 0.77
Clean air will be a part of my future. 0.36 0.76
I can make a difference in the effort to save the environment. 0.34 0.76
We have damaged the environment beyond repair. 0.44 0.75
No matter what we do, this planet will slowly be destroyed. 0.47 0.74
Recycling is "too little, too late". 0.55 0.73
Our efforts to recycle will not make a dent in the damage we're doing to the environment. 0.36 0.76

Optimistic Items = 5    Pessimistic Items = 5

World:
Nuclear war cannot be avoided. 0.39 0.74
World peace?, nice idea, but I doubt that it will happen. 0.53 0.72
World peace is a pipe dream. 0.55 0.72
We will be involved in another major war in the near future. 0.37 0.75
I envision world peace. 0.46 0.73
Someday there will be no need for war. 0.44 0.74
World leaders will use peaceful means to work out their differences in the future. 0.41 0.74
In the near future, there will be no need for nuclear weapons. 0.42 0.74
Nuclear weapons will never be used. 0.35 0.75

Optimistic Items = 5    Pessimistic Items = 4
## APPENDIX C

### Table 3

**Correlations Between Optimism and Pessimism and Negative Attractivity Indexes**

<table>
<thead>
<tr>
<th>OP Indexes with OP Indexes</th>
<th>OPIC</th>
<th>OPIE</th>
<th>OPIP</th>
<th>OPIS</th>
<th>ASQ1</th>
<th>ASQ2</th>
<th>ASQ3</th>
<th>ASQ4</th>
<th>ASQ5</th>
<th>ASQ6</th>
<th>GESS</th>
<th>LOT</th>
</tr>
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<tbody>
<tr>
<td>OPIC</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>OPIE</td>
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<td>1.00</td>
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<td>-.13</td>
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<td>.17</td>
<td>.04</td>
<td>.14</td>
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<td>.04</td>
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<td>-.16</td>
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<td>LOT</td>
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<td>.76</td>
<td>.47</td>
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<td>.25</td>
<td>.23</td>
<td>-.15</td>
<td>.14</td>
<td>-.22</td>
<td>.13</td>
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</table>

<table>
<thead>
<tr>
<th>NA Indexes with OP Indexes</th>
<th>OPIC</th>
<th>OPIE</th>
<th>OPIP</th>
<th>OPIS</th>
<th>ASQ1</th>
<th>ASQ2</th>
<th>ASQ3</th>
<th>ASQ4</th>
<th>ASQ5</th>
<th>ASQ6</th>
<th>GESS</th>
<th>LOT</th>
</tr>
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**Note.** OPI sub scales: C=career; E=environnement; P=personal; H=health; O=others; S=sysstems; W=world. ASQ sub scales: I=internal, positive; Z=internal, negative; S=stable, positive; A=stable, negative; G=global, positive; H=global, negative. GESS=Generalized Expectancy for Success Scale. LOT=Life Orientation Test. BSI sub scales: D=Depression; A=Anxiety; H=Hostility. BDI=Beck Depression Inventory. ATRT=Speilberger's State-Trait Anxiety inventory, Trait Form. TMS=Taylor's Manifest Anxiety Scale.
APPENDIX D

Table 4

Generalized least squares solution - Parameter estimates are standardized; associated Z-statistics are shown below parameter estimates.

### OPTIMISM LATENT VARIABLE

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<th>Z-statistic</th>
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<tr>
<td>OPIC</td>
<td>0.668*F1 + 0.744</td>
<td>11.72</td>
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<tr>
<td>OPIP</td>
<td>0.871*F1 + 0.491</td>
<td>17.50</td>
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<td>OPIH</td>
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<td>OPIO</td>
<td>0.503*F1 + 0.864</td>
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<td>OPIE</td>
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<td>LOT</td>
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### NEGATIVE AFFECTIVITY LATENT VARIABLE

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SELF-REPORTED HEALTH BEHAVIOR LATENT VARIABLES

EXERCISE = .427*F4 + .904 E22
          3.76
DIET    = .825*F4 + .565 E23
          5.91
RISK    = .612*F4 + .790 E24
          5.98
MAINTENANCE = .907*F5 + .421 E25
             4.46
DRUGS   = .339*F5 + .941 E26
             4.59

CONSTRUCT EQUATIONS: OP & NA PREDICTING HEALTH 1 & 2

HEALTH 1 = .327*F1 + -.006*F2 + .947 D4
             1.49     -.028
HEALTH 2 = .016*F1 + .586*F2 + .800 D5
             .087       2.49
Study 1: OPI measurement model. (Parameter estimates are standardized; loadings are all significant at p<.05).
APPENDIX F

Figure 2

Study 2: Complete measurement model.
(see Table 4 for listing of standardized parameter estimates.)
Study 3: Self-reported health behavior measurement model. (Parameter estimates are standardized; all loadings are significant at p<.05).
Study 3: Structural equations model of OP and NA constructs predicting self-reported health behaviors. (Parameter estimates are standardized. See Table 4 for measurement and construct equations).
APPENDIX I
Sample Questionnaire

Attributional Style Questionnaire (ASQ)

1) Read each situation and vividly imagine it happening to you.
2) Decide what you believe would be the one major cause of the situation if it happened to you.
3) Answer three questions about the cause by entering one number on your answer sheet per question.
4) Go on to the next situation.

SITUATIONS

YOU MEET A FRIEND WHO COMPLIMENTS YOU ON YOUR APPEARANCE.

1) Is the cause of your friend's compliment due to something about you or something about other people or circumstances?
   Totally due to other 1 2 3 4 5 6 7 Totally due to me

2) In the future when you are with your friend, will this cause again be present?
   Will never again be 1 2 3 4 5 6 7 Will always be present

3) Is the cause something that just affects interacting with friends, or does it also influence other areas of your life?
   Influences just this 1 2 3 4 5 6 7 Influences all situations in my life

YOU HAVE BEEN LOOKING FOR A JOB UNSUCCESSFULLY FOR SOME TIME.

4) Is the cause of your unsuccessful job search due to something about you or something about other people or circumstances?
   Totally due to other 1 2 3 4 5 6 7 Totally due to me

5) In the future when you look for a job, will this cause...
again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

6) Is the cause something that just influences looking for a job, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences particular situation all situations in my life

YOU BECOME VERY RICH.

7) Is the cause of your becoming rich due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

8) In your financial future, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

9) Is the cause something that just affects obtaining money, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences particular situation all situations in my life

A FRIEND COMES TO YOU WITH A PROBLEM AND YOU DON’T TRY TO HELP HIM/HER.

10) Is this cause of your not helping your friend due to something about your or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

11) In the future when a friend comes to you with a problem, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present
12) Is the cause something that just affects what happens when a fiend comes to you with a problem, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences particular situation all situations in my life

YOU GIVE AN IMPORTANT TALK IN FRONT OF A GROUP AND THE AUDIENCE REACTS NEGATIVELY

13) Is the cause of the audience’s negative reaction due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due people or circumstances to me

14) In the future when you give talks, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

15) Is the cause something that just influences giving talks, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences particular situation all situations in my life

YOU DO A PROJECT WHICH IS HIGHLY PRAISED.

16) Is the cause of your being praised due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due people or circumstances to me

17) In the future when you do a project, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

18) Is the cause something that just affects doing projects, or does it also influence other areas of your life?
YOU MEET A FRIEND WHO ACTS HOSTILELY TOWARDS YOU.

19) Is the cause of your friend acting hostile due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

20) In the future when interacting with friends, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

21) Is the cause something that just influences interacting with friends, or does it also influence other areas of your life?

YOU CAN'T GET ALL THE WORK DONE THAT OTHERS EXPECT OF YOU.

22) Is the cause of your not getting the work done due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

23) In the future when doing work that others expect, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

24) Is the cause something that just affects doing work that others expect of you, or does it also influence other areas of your life?
Your spouse (boyfriend/girlfriend) has been treating you more lovingly.

25) Is the cause of your spouse (boyfriend/girlfriend) treating you more lovingly due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

26) In future interactions with your spouse (boyfriend/girlfriend), will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

27) Is the cause something that just affects how your spouse (boyfriend/girlfriend) treats you, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences all situations

You apply for a position that you want very badly (e.g., important job, graduate school admission, etc.) and you get it.

28) Is the cause of your getting the position due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

29) In the future when you apply for a position, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

30) Is the cause something that just influences applying for a position, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences all situations
YOU GO OUT ON A DATE AND IT GOES BADLY.

31) Is the cause of the date going badly due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

32) In the future when you are dating, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

33) Is the cause something that just influences dating, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences all situations in my life

YOU GET A RAISE.

34) Is the cause of your getting a raise due to something about you or something about other people or circumstances?

Totally due to other 1 2 3 4 5 6 7 Totally due to me

35) In the future on your job, will this cause again be present?

Will never again be 1 2 3 4 5 6 7 Will always be present

36) Is this cause something that just affects getting a raise, or does it also influence other areas of your life?

Influences just this 1 2 3 4 5 6 7 Influences all situations in my life

Brief Symptom Inventory (BSI)

Below is a list of problems and complaints people sometimes have. Read each one carefully, and select one of the numbers that best describes how much discomfort that
problem has caused you DURING THE LAST MONTH, INCLUDING TODAY. Enter one number on your answer sheet. Do not skip any items.

4 = extremely
3 = quite a bit
2 = moderately
1 = a little bit
0 = not at all

1. Nervousness or shakiness inside.
2. Faintness or dizziness.
3. The idea that someone else can control your thoughts.
4. Feeling others are to blame for most of your troubles.
5. Trouble remembering things.
6. Feeling annoyed or irritated.
7. Pains in heart or chest.
9. Thoughts of ending your life.
10. Feeling that most people cannot be trusted.
11. Poor appetite.
12. Suddenly scared for no reason.
13. Temper outbursts that you could not control.
14. Feeling lonely even when you are with people.
18. Feeling no interest in things.
20. Your feelings are easily hurt.
21. Feeling that people are unfriendly or dislike you.
22. Feeling inferior to others.
23. Nausea or upset stomach.
24. Feeling that you are watched or talked about by others.
25. Trouble falling asleep.
26. Having to check and doublecheck what you do.
27. Difficulty making decisions.
28. Feeling afraid to travel on buses, subways or trains.
29. Trouble getting your breath.
30. Hot or cold spells.
31. Having to avoid certain things, places or activities because they frighten you.
32. Your mind going blank.
33. Numbness or tingling in parts of your body.
34. The idea that you should be punished for your sins.
35. Feeling hopeless about the future.
36. Trouble concentrating.
37. Feeling weak in parts of your body.
38. Feeling tense or keyed up.
39. Thoughts of death or dying.
40. Having urges to beat, injure or harm someone.
41. Having urges to break or smash things.
42. Feeling very self-conscious with others.
43. Feeling uneasy in crowds.
44. Never feeling close to another person.
45. Spells of terror or panic.
46. Getting into frequent arguments.
47. Feeling nervous when you are left alone.
48. Others not giving you proper credit for your achievement.
49. Feeling so restless you couldn't sit still.
50. Feelings of worthlessness.
51. Feeling that people will take advantage of you if you let them.
52. Feelings of guilt.
53. The idea that something is wrong with your mind.

Generalized Expectancy for Success Scale (GESS)

Using the scale provided below, please indicate the degree to which you believe the statement would apply to you personally by entering the appropriate number on your answer sheet. Give the answer that you truly believe best applies to you and not what you would like to be true or think others would like to hear. Answer the items carefully but do not spend too much time on any one item. Be sure to find an answer for every item, even if the statement describes a situation you presently do not expect to encounter. Answer as if you were going to be in each situation. Also try to respond to each item independently when making a choice; do not be influenced by your previous choices. Thank you for your cooperation.

Use this scale for each statement:

1 2 3 4 5
Highly improbable Highly probable

IN THE FUTURE I EXPECT THAT I WILL...

1. find that people don't seem to understand what I am trying to say.
2. be discouraged about my ability to gain the respect of others.
3. be a good parent
4. be unable to accomplish my goals
5. have a successful marital relationship.
6. deal poorly with emergency situation.
7. find my efforts to change situations I don't like are ineffective.
8. not be very good at learning new skills.
9. carry through my responsibilities successfully.
10. discover that the good in life outweighs the bad.
11. handle unexpected problems successfully.
12. get the promotions I deserve.
13. succeed in the projects I undertake.
14. not make any significant contributions to society.
15. discover that my life is not getting any better.
16. be listened to when I speak.
17. discover that my plans don’t work out too well.
18. find that no matter how hard I try, things just don’t turn out the way I would like.
19. handle myself well in whatever situation I’m in.
20. be able to solve my own problems.
21. succeed at most things I try.
22. be successful in my endeavors in the long run.
23. be very successful working out my personal life.
24. experience many failures in my life.
25. make a good impression on people I meet for the first time.
26. attain the career goals I have set for myself.
27. have difficulty dealing with my superiors.
28. have problems working with others.
29. be a good judge of what it takes to get ahead.
30. achieve recognition in my profession.

**Beck Depression Inventory (BDI)**

On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling the PAST WEEK, INCLUDING TODAY. Enter the number of the statement you picked on your answer sheet. Be sure to read all the statements in each group before making your choice.

1. 0 I do not feel sad.
   1 I feel sad.
   2 I am sad all the time and I can’t snap out of it.
   3 I am so sad or unhappy that I can’t stand it.

2. 0 I am not particularly discouraged about the future.
   1 I feel discouraged about the future.
   2 I feel I have nothing to look forward to.
   3 I feel that the future is hopeless and that things cannot improve.

3. 0 I do not feel like a failure.
1 I feel I have failed more than the average person.
2 As I look back on my life, all I can see is a lot of failures.
3 I feel I am a complete failure as a person.

4. 0 I get as much satisfaction out of things as I used to.
1 I don't enjoy things the way I used to.
2 I don't get real satisfaction out of anything anymore.
3 I am dissatisfied or bored with everything.

5. 0 I don't feel particularly guilty.
1 I feel guilty a good part of the time.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

6. 0 I don't feel I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel I am being punished.

7. 0 I don't feel disappointed in myself.
1 I am disappointed in myself.
2 I am disgusted with myself.
3 I hate myself.

8. 0 I don't feel I am any worse than anybody else.
1 I am critical of myself for my weaknesses or mistakes.
2 I blame myself all the time for my faults.
3 I blame myself for everything bad that happens.

9. 0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

10. 0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry all the time now.
3 I used to be able to cry, but now I can't cry even though I want to.

11. 0 I am no more irritated now than I ever am.
1 I get annoyed or irritated more easily than I used to.
2 I feel irritated all the time now.
3 I don't get irritated at all by the things that used to irritate me.

12. 0 I have not lost interest in other people.
1. I am less interested in other people than I used to be.
2. I have lost most of my interest in other people.
3. I have lost all of my interest in other people.

13. 0 I make decisions about as well as I ever could.
1. I put off making decisions more than I used to.
2. I have greater difficulty in making decisions than before.
3. I can’t make decisions at all anymore.

14. 0 I don’t feel I look any worse than I used to.
1. I am worried that I am looking old or unattractive.
2. I feel that there are permanent changes in my appearance that make me look unattractive.
3. I believe that I look ugly.

15. 0 I can work about as well as before.
1. It takes extra effort to get started at doing something.
2. I have to push myself very hard to do anything.
3. I can’t do any work at all.

16. 0 I can sleep as well as usual.
1. I don’t sleep as well as I used to.
2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3. I wake up several hours earlier than I used to and cannot get back to sleep.

17. 0 I don’t get any more tired than usual.
1. I get tired more easily than I used to.
2. I get tired from doing almost anything.
3. I am too tired to do anything.

18. 0 My appetite is no worse than usual.
1. My appetite is not as good as it used to be.
2. My appetite is much worse now.
3. I have no appetite at all anymore.

19. 0 I haven’t lost much weight, if any, lately.
1. I have lost more than 5 pounds. (I am purposely trying
2. I have lost more than 10 pounds. to lose weight by
3. I have lost more than 15 pounds. eating less Yes ____
   No _____)

20. 0 I am no more worried about my health than usual.
1. I am worried about physical problems such as aches and pains; upset stomach; or constipation.
2 I am very worried about physical problems and it is hard to think of much else.
3 I am so worried about my physical problems that I cannot think about anything else.

21. 0 I have not noticed any recent change in my interest in sex.
   1 I am less interested in sex than I used to be.
   2 I am much less interested in sex now.
   3 I have lost interest in sex completely.

Folkphrases (new measure being developed; not addressed in this paper, but was included in the packet)

Written below are some common (and not so common) phrases. Please enter either 1 for true, or 2 for false as best represents your experience with, and your feelings about, these phrases. Please note; there are no right or wrong answers to these questions. We are interested in your spontaneous responses. Thank you.

You can't fight city hall.

   1. I understand the meaning of this phrase.
   2. I have used this phrase.
   3. I agree with the sentiment implied in this phrase.

Tomorrow is another day.

   4. I understand the meaning of this phrase.
   5. I have used this phrase.
   6. I agree with the sentiment implied in this phrase.

April showers bring May flowers.

   7. I understand the meaning of this phrase.
   8. I have used this phrase.
   9. I agree with the sentiment implied in this phrase.

It often, "rains on my parade."

   10. I understand the meaning of this phrase.
   11. I have used this phrase.
   12. I agree with the sentiment implied in this phrase.

If anything can go wrong it will.

   13. I understand the meaning of this phrase.
   14. I have used this phrase.
15. I agree with the sentiment implied in this phrase.

There's a pot of gold at the end of every rainbow.

16. I understand the meaning of this phrase.
17. I have used this phrase.
18. I agree with the sentiment implied in this phrase.

I know there is a Mr./Ms. "Right" out there for me.

19. I understand the meaning of this phrase.
20. I have used this phrase.
21. I agree with the sentiment implied in this phrase.

It seems the traffic lights I encounter have all turned red.

22. I understand the meaning of this phrase.
23. I have used this phrase.
24. I agree with the sentiment implied in this phrase.

"The road will rise up to meet me and the wind will be at my back."

25. I understand the meaning of this phrase.
26. I have used this phrase.
27. I agree with the sentiment implied in this phrase.

It seems my path is full of stumbling blocks.

28. I understand the meaning of this phrase.
29. I have used this phrase.
30. I agree with the sentiment implied in this phrase.

Carpe diem! (Seize the day.)

31. I understand the meaning of this phrase.
32. I have used this phrase.
33. I agree with the sentiment implied in this phrase.

Many see life as it is and ask, "Why?". Others have dreams and say, "Why not?".

34. I understand the meaning of this phrase.
35. I have used this phrase.
36. I agree with the sentiment implied in this phrase.

"Life's a bitch, and then you die."
37. I understand the meaning of this phrase.
38. I have used this phrase.
39. I agree with the sentiment implied in this phrase.

Always "look on the bright side".

40. I understand the meaning of this phrase.
41. I have used this phrase.
42. I agree with the sentiment implied in this phrase.

There is no "bright side".

43. I understand the meaning of this phrase.
44. I have used this phrase.
45. I agree with the sentiment implied in this phrase.

No news, is good news.

46. I understand the meaning of this phrase.
47. I have used this phrase.
48. I agree with the sentiment implied in this phrase.

Every dog has it's day.

49. I understand the meaning of this phrase.
50. I have used this phrase.
51. I agree with the sentiment implied in this phrase.

Them that has, gets.

52. I understand the meaning of this phrase.
53. I have used this phrase.
54. I agree with the sentiment implied in this phrase.

Hold on to your dreams.

55. I understand the meaning of this phrase.
56. I have used this phrase.
57. I agree with the sentiment implied in this phrase.

In every garden a weed must grow.

58. I understand the meaning of this phrase.
59. I have used this phrase.
60. I agree with the sentiment implied in this phrase.

"I think I can ... I think I can ... I think I can..."

61. I understand the meaning of this phrase.
62. I have used this phrase.
63. I agree with the sentiment implied in this phrase.

Why bother?

64. I understand the meaning of this phrase.
65. I have used this phrase.
66. I agree with the sentiment implied in this phrase.

Every cloud has a silver lining.

67. I understand the meaning of this phrase.
68. I have used this phrase.
69. I agree with the sentiment implied in this phrase.

All that glitters is not gold.

70. I understand the meaning of this phrase.
71. I have used this phrase.
72. I agree with the sentiment implied in this phrase.

It is always darkest before the dawn.

73. I understand the meaning of this phrase.
74. I have used this phrase.
75. I agree with the sentiment implied in this phrase.

**Taylor's Manifest Anxiety Scale (TMAS)**

Please read the following statements and choose either 1 for true or 2 for false as it applies to how you usually feel. There are no right or wrong answers to these statements. We are interested in how you typically feel, not how you think you should feel or what would sound good to others. Thank you for your time.

1 = True
2 = False

1. I am often sick to my stomach.
2. I am about as nervous as other people.
3. I work under a great deal of strain.
4. I blush as often as others.
5. I have diarrhea ("the runs") once a month or more.
6. I worry quite a bit over possible troubles.
7. When embarrassed I often break out in a sweat which is very annoying.
8. I do not often notice my heart pounding and I am seldom short of breath.
9. Often my bowels don’t move for several days at a time.
10. At times I lose sleep over worry.
11. My sleep is restless and disturbed.
12. I often dream about things I don’t like to tell other people.
13. My feelings are hurt easier than most people.
14. I often find myself worrying about something.
15. I wish I could be as happy as others.
16. I feel anxious about something or someone almost all of the time.
17. At times I am so restless that I cannot sit in a chair for very long.
18. I have often felt that I faced so many difficulties I could not overcome them.
19. At times I have been worried beyond reason about something that really did not matter.
20. I do not have as many fears as my friends.
21. I am more self-conscious than most people.
22. I am the kind of person who takes things hard.
23. I am a very nervous person.
24. Life is often a strain for me.
25. I am not at all confident of myself.
26. At times I feel I am going to crack up.
27. I don’t like to face a difficulty or make an important decision.
28. I am very confident of myself.

The Optimism and Pessimism Inventory (OPI)

Using the scale provided below, enter the number on your answer sheet that best represents how you usually think or feel. Try to use the center line, which corresponds to "neutral", as little as possible. Thank you for your cooperation.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>strongly agree</td>
</tr>
<tr>
<td>4</td>
<td>agree</td>
</tr>
<tr>
<td>3</td>
<td>neutral</td>
</tr>
<tr>
<td>2</td>
<td>disagree</td>
</tr>
<tr>
<td>1</td>
<td>strongly disagree</td>
</tr>
</tbody>
</table>

1) I believe we can clean up the earth.
2) I know I will have a satisfying career.
3) I envision world peace.
4) I look forward to new challenges.
5) We have damaged the environment beyond repair.
6) I always expect obstacles that cannot be overcome.
7) I can keep myself well.
8) World peace is a pipe dream.
9) I expect to "win" at everything.
10) I will never have to struggle.
11) The proper diet can prevent many illnesses.
12) A bright future awaits me.
13) My life plans will proceed without a "hitch".
14) I expect life to be good to me.
15) I will always feel good about my life.
16) World leaders will use peaceful means to work out their differences in the future.
17) Our efforts to recycle will not make a dent in the damage we're doing to the environment.
18) I know I will always have good friends.
19) I often wake up looking forward to what the day will bring.
20) Whenever I try to do anything, it seems there are many obstacles I must overcome.
21) Cancer is a death sentence.
22) My work will always be fulfilling.
23) Nothing will ever work out for me.
24) Most employers have their own profits/benefits in mind.
25) I know my friends will always be there for me when I need them.
26) Clean air will be a part of my future.
27) I don't expect everything to "come up roses" in my life.
28) I know I will end up with cancer.
29) I will never be involved in an accident.
30) I expect life to be a constant struggle.
31) I know I will get a catastrophic illness.
32) Nothing we can do will save the environment.
33) No matter how much exercise one does, it will not prevent illness.
34) I will not advance in my career.
35) I expect my life to be one hardship after another.
36) Things don't usually go my way.
37) I will advance rapidly in my career.
38) The system will respond to input from the people.
39) There will always be war.
40) World peace?, nice idea, but I doubt that it will happen.
41) There is nothing one can do to avoid illness.
42) I may never get the job I really want.
43) I will never be handed things "on a silver platter".
44) The future of our systems is on shaky ground.
45) I can rely on my family for the things I really need.
46) I will always be someone else's "pee-on".
47) I play games of chance.
48) Someday there will be no need for war.
49) People can avoid most accidents.
50) As far as the system goes, things are going to get worse.
51) I will always be just another "cog in the machine".
52) I will never get ill.
53) I expect most people to be friendly or benevolent.
54) I expect to "lose" at everything.
55) I expect my work or career to be rewarding.
56) Most of the time "the system" can be helpful.
57) The political system, our democracy, is set up with the taxpayers interests in mind.
58) I will succeed at everything I try.
59) Everything causes cancer these days.
60) I find that most people have something unique to contribute to my life.
61) The universe is a friendly place.
62) I expect to be happy most of the time.
63) Nuclear weapons will never be used.
64) No matter what we do, this planet will slowly be destroyed.
65) I never expect to achieve anything.
66) Every time I set out to accomplish a goal, something gets in my way.
67) We will be able to clean up the environment.
68) I will never encounter hardship in my life.
69) I never expect to get a break in life.
70) It is better not to rely on friends for anything you really need.
71) I will never experience success.
72) "Bad things" will never happen to me.
73) Someone "up there" doesn't like me.
74) Someone watches over me.
75) I will stay healthy most of my life.
76) Sometimes I feel I lead a "charmed life".
77) I don't expect much from others.
78) Many of our systems, like Social Security, are going to fail in the near future.
79) Getting old means getting ill.
80) Medicine will never find a cure for AIDS.
81) I can make a difference in the effort to save the environment.
82) My work will be sheer drudgery.
83) I expect everything to go my way.
84) Most major illnesses can be prevented.
85) We will be involved in another major war in the near future.
86) Why bother?
87) My work will be very well known in my field.
88) I know they will find a cure for AIDS in my lifetime.
89) Recycling is "too little, too late".
90) I expect to accomplish most of the projects I undertake.
91) My work will never amount to anything.
92) I will always have doubts about the future.
93) The system is designed to protect people.
94) We will be able to save many of the endangered species.
95) I do not look forward to the future.
96) Nuclear war cannot be avoided.
97) In the near future, there will be no need for nuclear weapons.
98) It doesn't pay to get involved.
99) I expect tomorrow to bring many difficulties and few rewards.
100) "The system" is full of paper shuffling bureaucrats who are only in it for a paycheck.
101) "The system" is set up to help people.
102) I know my family will be there for me when I need them.
103) You have to look out for yourself in this world.
104) Most people do not have my best interest in mind.
105) I don't plan for the future.

Crown-Marlowe (Social Desirability) Scale

Please read each statement and decide whether you feel in general that it is mostly true as applied to you or mostly false. Please enter 1 for "true" or 2 for "false" on your answer sheet. Answer true to positively stated questions if they are true as often or more often than stated. For example, answer true to "Occasionally, I play poker" if you play occasionally or more often. Thank you for your time.

1 = True
2 = False

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

The Life Orientation Test (LOT)

Please answer the following questions about yourself by entering the appropriate number on your answer sheet. For each of the statements, indicate the extent of your agreement by using the following scale:

4 = strongly agree
3 = agree
2 = neutral
1 = disagree
0 = strongly disagree
Please be as honest as you can throughout, and try not to let your responses to one question influence your response to other questions. There are no right or wrong answers.

1. In uncertain times I usually expect the best.
2. It's easy for me to relax.
3. If something can go wrong for me, it will.
4. I always look on the bright side of things.
5. I'm always optimistic about my future.
6. I enjoy my friends a lot.
7. It's important for me to keep busy.
8. I hardly ever expect things to go my way.
9. Things never work out the way I want them to.
10. I don't get upset too easily.
11. I'm a believer in the idea that "every cloud has a silver lining".
12. I rarely count on good things happening to me.

Multiple Affect Adjective Checklist (MAACL). This measure was not included in the analyses reported in this paper; but it was included in the packet.

The list below contains adjectives that people sometimes use to describe how they are feeling. Please respond either 1 = true or 2 = false to each adjective as you feel it applies to you. Thank you.
1 = True
2 = False

| 1. active       | 46. fit         | 89. peaceful   |
| 2. adventurous  | 47. forlorn    | 90. pleased    |
| 3. affectionate | 48. frank      | 91. pleasant   |
| 4. afraid       | 49. friendly   | 92. polite     |
| 5. agitated     | 50. frightened | 93. powerful   |
| 6. agreeable    | 51. furious    | 94. quiet      |
| 7. aggressive   | 52. lively     | 95. reckless   |
| 8. alive        | 53. gentle     | 96. rejected   |
| 9. alone        | 54. glad       | 97. rough      |
| 10. amiable     | 55. gloomy     | 98. sad        |
| 11. amused      | 56. good       | 99. safe       |
| 12. angry       | 57. good-natured| 100. satisfied |
| 13. annoyed     | 58. grim       | 101. secure    |
| 14. awful       | 59. happy      | 102. shaky     |
| 15. bashful     | 60. healthy    | 103. shy       |
| 16. bitter      | 61. hopeless    | 104. soothed   |
| 17. blue        | 62. hostile    | 105. steady    |
| 18. bored       | 63. impatient   | 106. stubborn  |
| 19. calm        | 64. incensed   | 107. stormy    |
A number of statements which people have used to describe themselves are given below. Read each statement and then enter the appropriate response (1-4 as listed below) to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel. Thank you.

1 = almost never
2 = sometimes
3 = often
4 = almost always

1. I feel pleasant.
2. I tire quickly.
3. I feel like crying.
4. I wish I could be as happy as others seem to be.
5. I am losing out on things because I can't make up my mind soon enough.
6. I feel rested.
7. I am "calm, cool and collected".
8. I feel that difficulties are piling up so fast that I
cannot overcome them.
9. I worry too much over something that really doesn't matter.
10. I am happy.
11. I am inclined to take things hard.
12. I lack self-confidence.
13. I feel secure.
14. I try to avoid facing a crisis or difficulty.
15. I feel blue.
16. I am content.
17. Some unimportant thought runs through my head and bothers me.
18. I take disappointments so keenly that I can't put them out of my mind.
19. I am a steady person.
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.

Health Behavior Scale

How often do the following statements describe you over the past three months? Enter the appropriate number on your answer sheet.

5 = Always
4 = Often
3 = Sometimes
2 = Rarely
1 = Never

1. Spent some of your free time participating in physical activities, sports, or hobbies such as gardening, home repair, cleaning, golf, softball, bowling, etc.
2. Exercised for at least 15-20 minutes, several times a week, to enhance muscle tone, strength, or flexibility (e.g., stretching, weight lifting, calisthenics, isometrics, etc.).
3. Spent at least 15-20 minutes performing some type of vigorous physical exercise at least 2-3 times a week (e.g., aerobics, jogging, swimming, walking briskly, etc.).
4. Pushed yourself while working or playing even though you were tired, fatigued, or exhausted.
5. Missed an entire night or large portion of an entire night of sleep (e.g., shift work, travel schedule, work projects, social activities, etc.).
6. Received less sleep than you normally need due to your work or play schedule (e.g., stayed up later in the evening or had to get up earlier in the morning).
7. Experienced poor quality sleep at night because you
had difficulty either falling or staying asleep (e.g., woke up often at night, restless sleep, awoke early & unable to fall back to sleep).

8. Unable to make time for or missed activities you find particularly refreshing, calming, and relaxing on a daily basis (e.g., hobbies, reading, watching television, listening to the radio, etc.).

9. Maintained close, physical, or intimate contact with someone that was infected, sick or ill (e.g., kissed, shared food, occupied the same car or office together, used another individual’s drinking glass, etc.).

10. Continued on with work or other activities even when you felt a symptom of an illness developing (e.g., fever, runny nose, sneezing, chills, etc.).

11. Failed to maintain body weight at an appropriate level for your age, gender, and height (i.e., unable to control weight).

12. Practiced safe sex (e.g., took necessary precautions such as limited number of your sexual partners or used condoms to minimize the risk of catching or spreading sexually transmitted diseases).

13. Failed to take either prescription medications prescribed by your physician or non-prescription supplements (e.g., vitamins, minerals) which you normally take.

14. Failed to maintain regular health prevention habits (e.g., avoided physical checkups, avoided wearing seat belts in cars, neglected oral hygiene, skipped monthly breast/testicular self-exams, ignored high blood pressure or cholesterol levels, etc.)

15. Took 1-2 aspirin tablets, not aspirin substitutes such as acetaminophen (e.g., Tylenol) or ibuprofen (e.g., Advil, Nuprin, Medipren), 3-4 times a week.

16. Failed to eat an adequate or nutritious breakfast at the start of each day.

17. Ate a well-balanced and nutritious variety of foods from the major food groups for each of my main meals on a daily basis (e.g., fruits, vegetables, fish, poultry, meats, grains, rice, and dairy products).

18. Monitored or restricted your daily intake of dietary saturated fats, cholesterol, sodium, sugar, and total calories.

19. Ate unhealthy fast food or junk food (e.g., pastries, candy, potato chips) instead of a regular meal.

20. Skipped an important meal that you normally would eat during the day (e.g., breakfast, dinner).

21. Took medications or ate foods that you are highly sensitive or allergic to causing physical complaints or other negative side effects (e.g., dizziness,
nausea, headaches).

22. Drank two or more cups of caffeinated beverages in 24 hours (e.g., coffee, tea, soft drinks) or ate foods high in caffeine on a daily basis (e.g., chocolate, cocoa, etc.).

23. Used prescription or non-prescription drugs (e.g., cocaine, marijuana, stimulants, depressants, over-the-counter medications, etc.) for social, recreational, or non-medical purposes.

24. Cigarette smoking: (enter the number of cigarettes smoked per day on your answer sheet): 1 = non-smoker; 2 = 1/2 pack; 3 = 3/4 pack; 4 = 1 pack; 5 = more than 1 pack.

25. Alcoholic beverage (e.g., wine, whiskey, beer, etc.) consumption (enter the number corresponding to volume consumed on your answer sheet): 1 = non-drinker; 2 = consumed less than three alcoholic beverages only occasionally (e.g., weddings, birthdays, etc.); 3 = consumed 1-3 alcoholic beverages in 24 hours several times/week; 4 = consumed more than 3 alcoholic beverages in 24 hours several times/week; 5 = consumed more than 3 alcoholic beverages every day.
References


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Costa, P.T. & McCrae, R.R. (1987). Neuroticism, somatic complaints, and disease: Is the bark worse than the


