Psychosocial Risk Factors for Upper Respiratory Infection:
SELF-MONITORING, SELF-CONSCIOUSNESS, AND SYMPTOM REPORT ACCURACY*

Ross R. Vickers, Jr.

Linda K. Hervig

Applied Physiology Department

Naval Health Research Center

P.O. Box 85122

San Diego, CA   92138-9174

Accession For

NTIS GRA&I		X
DTIC TAB		☐
Unannounced		☐
Justification		

By____

Distribution/

Availability Codes

Dist	Avail and/or Special
A-1	

DTIC
COPY
INSPECTED
6

SUMMARY

Symptom reports are a convenient, inexpensive method of monitoring illness. Used as indicators of upper respiratory illness, such reports have substantial, but imperfect, correlations to clinical ratings of illness and to biological indicators of infection and the response to infection. The observed correlations are encouraging, but better symptom reports might be obtained if psychological factors that reduce the accuracy of symptom reports could be identified. Two studies were conducted to determine whether self-consciousness and self-monitoring, two psychological constructs that hypothetically could affect symptom reporting, affected the relationships between URI symptom reports and established predictors of those reports.

Self-consciousness refers to the tendency to attend closely to inner feelings. Self-monitoring refers to a tendency to attend to cues in the social environment to determine how to act and what to say. Self-consciousness would increase the accuracy of symptom reporting if attention to symptoms and their related sensations is a prerequisite for accurate reports. Self-monitoring presumably would decrease the accuracy of symptom reports, because high self-monitors would make these reports depend on external situational cues as well as internal states.

The two general hypotheses stated above were tested by relating URI symptom reports to established URI predictors in groups of individuals classified as low, medium, and high on self-consciousness or self-monitoring. Predictors included health history and personality variables and the basic analysis procedure focused on determining whether the linear functions relating the predictors to URI differed across the three groups defined by self-consciousness or self-monitoring. The statistical test involved was a test for parallelism of regression lines within the different groups.

Analyses conducted in one sample of recruits showed stronger associations between URI and a history of severe colds among low self-monitors and a marginal trend in the same direction for the association between URI and a general history of respiratory illnesses. Self-consciousness produced no evidence of moderator effects, so a follow-up study conducted to replicate the initial findings dropped self-consciousness

and added additional indicators of self-monitoring. The original findings did not replicate and none of the added self-monitoring scales produced evidence of moderator effects. This study also extended the set of predictor variables to include indicators of neuroticism, but no moderator effects were found for these predictors.

Self-consciousness and self-monitoring evidently do not affect the accuracy of symptom reports, at least not in ways that affect their association to risk factors for URI. A previous study failed to find evidence that interactions among different personality variables or between personality and biological susceptibility to infection were important for predicting URI. The present results combined with those prior findings suggest that a simple, additive risk profile is appropriate for predicting URI during basic training. Progress toward that profile has been made in prior studies.

INTRODUCTION

Symptom reports are an important part of health status assessments in upper respiratory illness (URI) research. These reports correlate with clinical ratings of illness (Roden, 1958; Totman, Reed & Craig, 1977), viral shedding (Forsyth, Bloom, Johnson & Chanock, 1963, Totman, Kiff, Reed & Craig, 1980), and biochemical indicators of infection (Naclerio, et al., 1988). The correlations in the studies just cited have been on the order of .50 to .90. Although these correlations are large relative to the norm for psychological measures (Cohen, 1969), a substantial part of the variance in symptom reports is not related to the alternative health status criteria. One explanation for the imperfect correlations would be that the symptom reports do not accurately reflect underlying pathology for some individuals. If so, developing methods for identifying individuals prone to inaccurate URI reporting would permit adjustments for this source of error, thereby providing a more reliable, valid criterion for URI research. This study examines two personality constructs, self-consciousness and self-monitoring, as potential determinants of URI symptom report accuracy.

A relationship between self-consciousness and symptom accuracy can be hypothesized, because highly self-conscious individuals attend closely to their own actions, attitudes, and feelings (Fenigstein, Scheier & Buss, 1975). This focus is believed to be an important determinant of whether a person responds adaptively to situational demands (Carver & Scheier 1981). Applied to symptom reporting, high self-consciousness may produce greater awareness of internal cues, thereby improving the correspondence between symptom reports and physiological status. If symptom report accuracy is defined as the correspondence between reports and physiological status, self-consciousness would increase the accuracy of symptom reports. Although there is evidence that self-consciousness is related to behavioral sensitivity to symptoms (Suls & Fletcher, 1985; Miller, Murphy & Buss, 1981), self-consciousness has not been tested extensively as an influence on symptom report validity.

Self-monitoring contrasts with self-consciousness by emphasizing attention to external cues rather than attention to internal cues. By definition, "the prototypic high self-monitoring individual is one who, out of a concern for the situational and interpersonal appropriateness of his or her social behavior, is particularly sensitive to the expression and

-1-

self-presentation of relevant others in social situations and uses these cues as guidelines for monitoring (that is, regulating and controlling) his or her own verbal and non-verbal self-presentation" (Snyder, 1979, p. 89, italics in the original). Symptom self-reports are a form of verbal self-presentation which can be modified in response to situational cues. The precise nature of the cues perceived in a typical research study would be hard to define, but it is not unreasonable to believe that a high self-monitoring individual would search for any elements of the research protocol or setting that could be interpreted as cues, then would respond to those presumed cues. This sensitivity to perceived external cues would reduce the correspondence between symptom reports and internal states assuming the perceived cues are not correlated highly with internal state. There is little a priori reason to expect close correspondence between perceived situational cues and internal state, so symptom reports of high self-monitors should be less valid than those of low self-monitors. Wysocki, Chemers and Rhodewalt (1987) presented evidence that symptom reports are more strongly related to stress among low self-monitors than high self-monitors, but did not examine the possibility that this effect might be mediated by specific elements of self-monitoring.

It is noteworthy that high self-consciousness does not imply low self-monitoring. Conceptually, a person could be highly aware of his or her own feelings or internal states but still modify reports of those perceptions in response to situational cues. Empirically, the correlation between the two constructs is approximately .20 (Briggs, Cheek & Buss, 1980; Penner & Wymer, 1983), so a wide range of combinations of self-consciousness and self-monitoring occur. The validity of self-reports, therefore, may depend on the combined effects of these two attributes, a point which apparently has not been investigated. An exploratory investigation of the combined effects, therefore, was included in this study.

STUDY 1

Method

Sample

The sample consisted of 570 recruits who volunteered to participate after receiving a description of the research. The average age of these recruits was 19.1 years (S.D. = 2.5; range = 17-33). The typical recruit had a high school diploma (93%) or Graduate Equivalency Degree (3%). The ethnic composition was primarily White (77%) with Blacks (14%) and Hispanics (4%) the largest minorities.

Personality Measures

The hypothesized effects of self-monitoring on symptom report accuracy should be particularly pronounced if the definition of self-monitoring groups is based on scores for the self-monitoring factor which Briggs, et al. (1980) labeled "other-directedness." This specific element of self-monitoring can be singled out, because other-directedness deals specifically with sensitivity to situational cues, while other elements of the overall self-monitoring construct are concerned with extraversion and perceived acting ability. The *Other-Directedness subscale from the* Self-Monitoring Scale is comprised of 11 true-false items indicating a propensity to adapt one's behavior to match the perceived expectations of other people in the situation or the nature of the situation itself. For example, one item says "In order to get along and be liked, I tend to be what people expect me to be rather than anything else," and a second item says "Even if I am not enjoying myself, I often pretend to be having a good time."

The assertion that self-consciousness may influence the accuracy of symptom reports logically applies most strongly to private self-consciousness, a subcomponent of self-consciousness identified by factor analysis, which deals with focus on internal states and motivations (Fenigstein, et al., 1975). The Private Self-Consciousness subscale from the Self-Consciousness Scale is comprised of 10 true-false items dealing with attention to inner states and motives. For example, one item is "I'm always trying to figure myself out" and another is "I'm generally very attentive of my inner feelings."

Health History Measures

The Typical Cold Severity and Respiratory Disease History measures described by Vickers and Hervig (1988b) were used to assess health history. Respiratory Disease History was comprised of eight true-false questions asking whether the recruit had ever had bronchitis, pneumonia, hay fever, sinus trouble, pulmonary tuberculosis, emphysema, asthma, and "any other chest illnesses." "True" responses were assigned a value of 1 and "False" responses a value of 0. Typical Cold was a 10-item scale asking about the typical severity of symptoms when the person had a cold. Specific symptoms were stuffed-up nose, runny nose, sore throat. general physical discomfort or weakness, headache, cough and/or sputum, fever, chilliness, sneezing, wheezing, and stuffy head. These symptoms were components of the URI symptom measure developed by Jackson, Dowling, Spiesman, and Boand (1958). Response options ranged from "Not at all severe" (scored 1) to "Extremely severe" (scored 5).

Previous studies have shown that these two scales adequately represented a set of 7 health history measures in two respects. First, principle components analyses indicated that the 7 health history measures defined two factors; Typical Cold Severity had the highest loading on one factor and Respiratory Disease History had the highest loading on the other. Second, after entering these two health history measures as predictors of URI during basic training, none of the remaining measures significantly improved the prediction of URI (Vickers & Hervig, 1988b).

Health Assessment

Symptom checklists were completed at seven data collection sessions. For approximately 50 per cent of the participants, the sessions were conducted 4, 12, 19, 26, 37, 46, and 53 days after beginning training. The sessions were conducted two days later for the remaining participants because a weekend intervened between the start of the study and the fourth day of the training schedule for these participants. This schedule was the closest possible approximation to a weekly assessment within the constraints of the training schedule.

At each session, recruits indicated the severity of each symptom over the preceding three days of basic training by marking the appropriate space on an optical scanning sheet with response options ranging from "Not at all severe" (1) to "Extremely severe" (5). URI was assessed by an 8-item

composite of the responses to questions asking about fever, sore throat, dry cough, productive cough, stuffed-up nose, sneezing, hoarseness, and sinus pain. Raw scores were adjusted to allow for the influence of concurrent allergies and musculoskeletal illnesses. Details of the development of this URI composite, including the justification for the adjustments, are given in Vickers and Hervig (1988a). Cumulative URI scores were computed for sessions 2 through 4. Previous findings indicated that personality did not predict URI during the later period of training (Vickers & Hervig, 1988c), so attempts to find significant moderator effects during that period were not likely to be productive. Presumably, the absence of associations later in training reflected the effects of restriction of variance arising from the absence of URI during that period.

A composite to assess General Symptom Reporting was constructed from responses to items concerning skin irritation, vomiting, diarrhea, and trouble hearing. This composite consisted of relatively infrequent symptoms which, with the possible exception of vomiting and diarrhea, did not appear to represent any illness syndrome common in basic training. Vomiting and diarrhea no doubt co-occur in some illnesses, such as infections of the gastrointestinal tract, but these two symptoms were empirically only weakly related in the recruit samples studied. In fact, both symptoms were more strongly related to "trouble hearing" than to each other. Given the generally low frequency of occurrence and relative independence of the four symptoms, it was reasonable to assume that high scores would be more likely to identify individuals with a strong tendency to endorse symptoms regardless of their content than to be indicative of individuals who, by chance, truly were experiencing the full set of symptoms.

Analysis Procedures

Exploratory analyses indicated that the relationships between health history and URI were linear (Vickers & Hervig, 1988b). Thus, the following analyses assumed linear associations between the predictors and health status. The analyses included computation of Pearson product moment correlations, multiple regression equations, including equations with cross-product terms to test for interactions (Saunders, 1956; Cohen. 1978). and analyses of covariance to test for parallelism of within-group regression lines (Tatsuoka, 1971). Specific procedures are described in the

presentation of results. All procedures were performed with subroutines of SPSS[X] (SPSS, 1983).

Results

Preliminary Analyses. Other Directedness was significantly related to Self-Consciousness ($r = .19$, $p < .001$, two-tailed, $n = 566$) but not to either health history variable or either symptom report measure (absolute $r < .07$). Self-consciousness was weakly related to Respiratory Disease History ($r = .11$, $p < .006$, two-tailed, $n = 564$) and Typical Cold ($r = .12$, $p < .004$, two-tailed, $n = 561$); but not to URI ($r = .05$, $p < .324$, two-tailed, $n = 366$) or General Symptom Reporting ($r = -.01$, $p < .822$, two-tailed, $n = 351$).

One-way analyses of variance were performed with groups defined by splitting the sample into thirds based on Other Directedness or Private Self-Consciousness scores. When health history and symptom report measures were the dependent variables, these analyses produced results similar to the correlational findings with respect to the pattern and significance of bivariate relationships. Within-group variances were compared to determine whether the differences were large enough to affect conclusions for moderator analyses (Zedeck, 1970). The within-group variances were comparable for Other Directedness, except that General Symptom Reporting was more variable in the moderate Other Directedness group (Bartlett-Box F max = 9.06, $p < .001$). For Private Self-Consciousness, Typical Cold was more variable in the low Self-Consciousness group than in the other two (Bartlett-Box F max = 4.85, $p < .009$) and Respiratory Disease History was more variable in the moderate Self-Consciousness group than in the other two (Bartlett-Box F max = 5.98, $p < .004$). The presence of some significant differences in variance was the basis for a decision to test for moderator effects by testing for parallelism of regression lines rather than by comparing correlation coefficients.

Moderator Analyses. Univariate tests for moderator effects were performed to ensure sensitive tests for moderator effects confined to a single predictor variable. Multivariate tests also were performed to identify any moderator effects that depended on the multivariate pattern of associations. The potential for capitalizing on chance by performing

multiple tests was acceptable, because the intent was to conduct follow-up studies to replicate any significant findings. For this reason, tests that were sensitive to any potentially important moderator effects were more important than procedures to control for experiment-wide error rate by Bonferroni or other adjustments of significance criteria (Harris, 1985).

The only statistically significant moderator effects were obtained with Other Directedness as the grouping variable (Table 1). A statistically significant (p < .038) moderator effect was obtained for Respiratory Disease History when Other Directedness was the classification variable and the moderator effect for Typical Cold approached significance (p < .071). The multivariate test for the combination of the two health history variables was statistically significant ($F_{4,315}$ = 2.89, p < .023). For Private Self-Consciousness, both univariate tests were nonsignificant (p > .18) as was the multivariate test ($F_{4,311}$ = 1.28, p > .27). The URI-General Symptom Reporting relationship was not affected by either moderator (Table 1).

Table 1

Summary of Moderator Effects of Other Directedness
and Private Self-Consciousness

Moderator Effect	Sum of Squares	Variance Explained	F	Sig.
Other Directedness				
Respiratory Disease History	1.81	1.29	3.31	.038
Typical Cold	1.33	0.84	2.67	.071
General Symptom Reporting	.06	0.00	.12	.883
Self-Consciousness				
Respiratory Disease History	.94	3.94	1.70	.183
Typical Cold	.35	0.00	.71	.495
General Symptom Reporting	.24	0.00	.55	.580

NOTE: Results represent the values for the predictor by subgroup interaction in the analysis of variance. The variance explained is the proportion of total URI variance explained minus that expected by chance given the degrees of freedom involved in the interaction effect (Hays, 1963, pp. 381-384). For F less than 1.00, the estimate of variance explained is less than zero, a meaningless result. Therefore, such results were set equal to zero.

The combined effects of Self-Consciousness and Self-Monitoring were examined by extending the ANCOVA procedures to a two-way classification involving nine groups defined by crossing the tertile classifications for the two personality variables. The null hypothesis of parallel regression lines within the nine groups could not be rejected whether the two health history measures were considered together in a single multivariate test for parallelism ($p > .15$) or considered separately in two univariate tests ($p > .25$ for each).

STUDY 2

The moderator effects in Study 1 were limited to self-monitoring, a trend which paralleled findings by Wysocki, et al. (1987). Consistent with the original plan, additional data were collected from a second sample to replicate these findings and extend the initial design to provide tests for additional moderator effects. First, the full Self-Monitoring scale was employed to test for the moderator effects, if any, of the two elements of the general self-monitoring construct omitted from Study 1. Second, the Respiratory Disease History measure was replaced with a longer Infectious Disease History measure that is a better bivariate predictor of URI in basic training (Vickers & Hervig, 1988b). The stronger association might be a basis for more sensitive tests of moderator effects, because associations which are intrinsically close to zero can show little variation across levels of a moderator. Third, personality measures were added to the predictors considered, because personality is a reliable, albeit weak correlate of URI in basic training (Voors, Rytel, Jenkins, Pierce & Stewart, 1969; Vickers & Hervig, 1988c). This extension extended the assessment of self-monitoring moderator effects to established URI predictors other than health history.

Method

Sample

The sample consisted of 514 recruits who volunteered to participate after it was described to them. The average age of these recruits was 19.3 years (S.D. = 2.9; range = 16-33). The typical recruit had a high school

diploma (92%) or Graduate Equivalency Degree (3%). The ethnic composition was predominantly White (71%), with Blacks (16%) and Hispanics (7%) the largest minority groups.

Health History Measures

The Typical Cold scale was retained from the earlier study, but the earlier Respiratory Disease History was replaced with Infectious Disease History, an index comprised of 26 true-false items concerning common types of infectious disease identified from textbooks on infectious disease (Youmans, Paterson & Sommers, 1980; Mandell, Douglas & Bennett, 1985; Hoeprich, 1983) and non-technical definitions of symptoms and their origins (Miller, 1976).

Personality Measures

The 25-item Self-Monitoring Scale (Snyder, 1974) was administered. Scores were computed for Other-Directedness, as in Study 1, for Introversion, a 6-item composite with high scores indicating feelings of awkwardness in social situations and a preference for letting other people be the focal points for social groups, and for Acting, a 5-item scale with high scores indicating that the person felt he could be a good actor or entertainer and could make impromptu social presentations. These three subscales were defined by Briggs, et al. (1980). Overall self-monitoring score was assessed by the 18-item composite defined by Snyder and Gangestad (1986).

The NEO Personality Inventory (Costa & McCrae, 1985) provided additional personality measures which were considered as possible URI predictors. This instrument measures five general dimensions of personality and 18 specific facets of personality. Analyses were restricted to measures of the general dimension of Neuroticism and six component facets of this general dimension. High Neuroticism scores identify individuals who are " . . . prone to psychological distress, unrealistic ideas, excessive cravings or urges, and maladaptive coping responses." The specific facets of the Neuroticism dimension, i.e., Anxiety, Depression, Hostility, Stress-Vulnerability, Self-Consciousness (or social anxiety), and Impulsiveness, are described in Costa and McCrae (1985). Neuroticism and its component facets were the only NEO personality variables that reliably predicted URI in basic training (Vickers & Hervig, 1988c). Restricting attention to these 7 variables, therefore, focused on personality variables

that have an association to URI that might be moderated by self-monitoring. The analyses were to be extended to the remaining personality measures if these predictors produced positive results.

Health Status Measurements.

Health status measures were the same as those in Study 1.

Analysis Procedures.

Analysis procedures were the same as in Study 1.

Results

Preliminary Analyses. The self-monitoring scales were uncorrelated ($r < .10$, absolute) with health history and symptom reports during basic training, except for weak associations between Acting and URI ($r = .103$) and between Introversion and Typical Cold ($r = .123$). One-way ANOVAs based on groups formed by dividing the sample into approximate thirds based on scores for Self-Monitoring Type, Introversion, Other Directedness, and Acting produced uniformly nonsignificant differences in within-group variance for the symptom report and health history measures ($p > .12$ for each test). The moderate Acting group was more variable than the other two groups for General Symptom Reporting (Bartlett-Box $F = 4.52$, $p < .012$), and the lo Acting group was more variable than the other two groups for Infectious Disease History (Bartlett-Box $F = 4.54$, $p < .012$). There were no significant group differences in variance for the other self-monitoring scales.

Replication of Prior Other-Directedness Findings. The interaction test for the combination of Typical Cold with Other Directedness which was significant in Study 1 was clearly nonsignificant ($p > .65$) in Study 2. Treating the Infectious Disease History as a conceptual replication for Respiratory Disease History, the results in this study ($p < .17$) would combine with the significant differences in Study 1 ($p < .04$) to produce a pooled significance estimate of $p < .022$ (by the method of adding probabilities, cf., Rosenthal, 1978). However, this significance estimate would be important only if the pattern of group differences in associations were the same across studies. The patterns were not similar, as indicated by the fact that the correlation between URI and Respiratory Disease was .29 in the low Other Directedness group, .07 in the moderate group, and -.03 in

-10-

the high group for Study 1, but the corresponding figures for Infectious
Disease History were -.07, .07, and -.06 in Study 2. Finally, the
multivariate test for parallelism of regression lines clearly failed to
confirm the significant result from Study 1 ($F_{4,278}$ = 1.03, p < .40).

Table 2

Summary of Analyses of Variance to Test for Moderating Effects
of Self-Monitoring on Associations between URI and Predictors

Moderator Effect	Sum of Squares	Per Cent Variance	F	Sig.
Self-Monitoring				
Infectious Disease History	.23	0.00	.49	.611
Typical Cold	.33	0.00	.75	.473
General Symptom Reporting	.21	0.00	.57	.564
Introversion				
Infectious Disease History	1.05	1.06	2.30	.103
Typical Cold	.81	0.48	1.86	.158
General Symptom Reporting	.44	0.14	1.21	.299
Other Directedness				
Infectious Disease History	.80	0.55	1.79	.169
Typical Cold	.19	0.00	.43	.651
General Symptom Reporting	.09	0.00	.25	.776
Acting				
Infectious Disease History	.02	0.00	.31	.959
Typical Cold	.31	0.00	.69	.501
General Symptom Reporting	.91	0.71	2.53	.081

NOTE: Results represent the values for the predictor by subgroup
interaction in the analysis of variance. The variance explained is the
proportion of total URI variance explained minus that expected by chance
given the degrees of freedom involved in the interaction effect (Hays, 1963,
pp. 381-384). For F less than 1.00, the estimate of variance explained is
less than zero, a meaningless result. Therefore, such results were set
equal to zero.

Results for Additional Self-Monitoring Variables. Univariate tests for
the presence of nonparallel regression lines were uniformly nonsignificant
(p > .08, Table 2) for Self-Monitoring Type, Acting, and Introversion. The
multivariate test for nonparallel regression lines also was nonsignificant
(p > .13) in all three cases.

Self-Monitoring, Personality, and URI. The self-monitoring measures tended to be related to the NEO personality measures. For the set of 7 neuroticism scales, the correlations for Self-monitoring Type ranged from -.01 to -.14. Comparable figures for Acting were .02 to -.14. Other Directedness was somewhat more strongly related to neuroticism (r = .12 to .24), but Introversion was the strongest correlate of neuroticism (r = .14 to .35, except for Impulsiveness, r = .03). However, even the significant associations were not associated with nonhomogeneity of within-group variances in the ANOVA procedures. Only 1 of 28 (7 personality variables by 4 self-monitoring variables) tests of the homogeneity of variance was significant. In this single instance, the variance in the Hostility scale was greater among individuals in the high Acting group than in the other two Acting groups. None of the remaining 27 homogeneity of variance tests was close to significance (p > .13 for each) and the probability of at least 1 significant (p < .05) difference in 28 tests is more than 76 per cent.

There was no evidence that self-monitoring moderated neuroticism-URI relationships. The tests for parallelism of regression lines were nonsignificant for Self-monitoring Type (.195 < p < .862 for the 7 significance tests), Introversion (.065 < p < .594), Other Directedness (.065 < p < .821), or Acting (.208 < p < .611). These negative findings were not attributable to considering the personality predictors individually. When the six neuroticism facets were employed as multivariate predictors of URI, the results were nonsignificant (p > .42) for each of the 4 self-monitoring scales.

DISCUSSION

Neither self-consciousness nor self-monitoring affected the associations between symptom reports and health history measures or general symptom reporting tendencies. Thus, these personality attributes did not help identify individuals whose symptom reports can be predicted with greater or lesser accuracy. Additional moderators could be considered (e.g., physical self-consciousness scales, cf., Miller, et al., 1981), but the history of attempts to identify reliable moderators makes it likely that the result would be to identify a few moderator effects which subsequent study would fail to replicate (Wiggins, 1973; Paunonen & Jackson, 1985; but

see Zuckerman, et al., 1988, for a recent dissenting opinion). The failure to replicate Wysocki, et al. (1987) may be attributable to differences in the specific variables studied, to situational factors affecting symptomatology, or other methodological considerations. In the general context of the past history of personality moderator research, it would be reasonable to replicate the Wysocki, et al. (1987) findings as closely as possible to determine whether the original finding was a chance result before attempting to explain the differences between that study and the present one. In the long run, it may be that self-monitoring will prove to be a weak moderator of the relationship between symptom reports and other variables with the present study and the Wysocki, et al. (1987) study representing opposite extremes of the effects of sampling variation about the true moderator effect.

These studies also extended the evidence that personality is a weak predictor of URI. Finding that neither self-consciousness nor self-monitoring tendencies was a strong predictor of URI extends the list of personality variables that are weak correlates of URI. The observed associations were somewhat weaker than those reported by Pennebaker (1982) as part of his program of research on the psychology of symptom reporting, but the symptom measure used in those studies covers a wide range of symptoms, rather than just respiratory symptoms, and asks for retrospective, long-term differences in symptoms. Both factors could affect correlations.

These results, combined with the negative findings of a previous study which explored interactions among personality variables and between personality and health history as predictors of URI during basic training (Vickers & Hervig, 1988b), imply that the prediction of URI is a straightforward problem of cumulating additive effects of different predictors. Progress toward the construction of a general predictive equation embodying this principle has been made in previous elements of this program (Vickers, Hervig & Edwards, 1986; Vickers & Hervig, 1988b, 1988c).

REFERENCES

Briggs, S.R., Cheek, J.M. & Buss, A.H. (1980). An analysis of the Self-Monitoring Scale. _Journal of Personality and Social Psychology_, 38, 679-686.

Carver, C.S. & Scheier, M.F. (1981). _Attention and Self-regulation: A Control Theory Approach to Human Behavior_. NY: Springer-Verlag.

Cohen, J. (1969). _Statistical Power Analysis for the Behavioral Sciences_. NY: Academic Press.

Cohen, J. (1978). Partialed products are interactions; partialed powers are curve components. _Psychological Bulletin_, 85, 858-866.

Costa, P.T., Jr. & McCrae, R.R. (1985). _NEO Personality Inventory Manual_. Odessa, FL: Psychological Assessment Resources, Inc.

Fenigstein, A., Scheier, M.F. & Buss, A.H. (1975). Public and private self-consciousness: Assessment and theory. _Journal of Consulting and Clinical Psychology_, 43, 522-527.

Forsyth, B.R., Bloom, H.H., Johnson, K.M. & Chanock, R.M. (1963). Patterns of illness in rhinovirus infections of military personnel. _New England Journal of Medicine_, 269, 602-606.

Harris, R.J. (1985). _A Primer of Multivariate Statistics_. Orlando, FL: Academic Press, pp. 7-9.

Hays, W. (1963). _Statistics for Psychologists_. NY: Holt, Rinehart, Winston.

Hoeprich, P.D. (1983). _Infectious Diseases: A Modern Treatise of Infectious Diseases (Third Edition)_. Philadelphia: Harper & Row.

Jackson, G.G., Dowling, M.D., Spiesman, M.O. & Boand, A.V. (1958). Transmission of the common cold to volunteers under controlled conditions. I. The common cold as a clinical entity. _Archives of Internal Medicine_, 101, 267-278.

Mandell, G.L., Douglas, R.G., Jr. & Bennett, J.E. (eds.) (1985). _Principles and Practice of Infectious Diseases (Second Edition)_. NY: Wiley.

Miller, L.C., Murphy, R. & Buss, A.H. (1981). Consciousness of body: Private and public. _Journal of Personality and Social Psychology_, 41, 397-406.

Miller, S.S. (ed.) (1976). _Symptoms: The Complete Home Medical Encyclopedia_. NY: Avon Books.

Naclerio, R.M., Proud, D., Lichtenstein, L.M., Kagey-Sobotka, A.K., Hendley, J.O., Sorrentino, J. & Gwaltney, J.M. (1988). Kinins are generated during experimental rhinovirus colds. _Journal of Infectious Disease_, 157, 133-142.

Paunonen, S.V. & Jackson, D.N. (1985). Idiographic measurement strategies for personality and prediction: Some unredeemed promissory notes. Psychological Bulletin, 92, 486-511.

Pennebaker, J.W. (1982). The Psychology of Physical Symptoms. NY: Springer-Verlag.

Penner, L.A. & Wymer, W.E. (1983). The moderator variable approach to behavioral predictability: Some of the variables some of the time. Journal of Research in Personality, 17, 339-353.

Roden, A.T. (1958). Clinical assessment of the common cold. Proceedings of the Royal Society for Medicine, 51, 271-273.

Rosenthal, R. (1978). Combining the results of independent studies. Psychological Bulletin, 85, 185-193.

Saunders, D.R. (1956). Moderator variables in prediction. Educational and Psychological Measurement, 16, 209-222.

Snyder, M. (1974). Self-monitoring of expressive behavior. Journal of Personality and Social Psychology, 30, 526-537.

Snyder, M. (1979). Self-monitoring processes. In L. Berkowitz (ed.), Advances in Experimental Social Psychology (Volume 12). NY: Academic Press, pp. 85-128.

Snyder, M. & Gangestad, S. (1986). On the nature of self-monitoring: Matters of assessment, matters of validity. Journal of Personality and Social Psychology, 51, 125-139.

Statistical Package for the Social Sciences (SPSS). (1983). SPSS^X Statistical Algorithms. Chicago: SPSS, Inc.

Suls, J. & Fletcher, B. (1985). Self-attention, life stress, and illness: A prospective study. Psychosomatic Medicine, 47, 469-481.

Tatsuoka, M.M. (1971). Multivariate Analysis. NY· Wiley, pp. 39-61.

Totman, R., Kiff, J., Reed, S.E. & Craig, J.W. (1980). Predicting experimental colds in volunteers from different measures of recent life stress. Journal of Psychosomatic Research, 24, 155-163.

Totman, R., Reed, S.E. & Craig, J.W. (1977). Cognitive dissonance, stress and virus-induced common colds. Journal Of Psychosomatic Research, 21, 55-63.

Vickers, R.R., Jr. & Hervig, L.K. (1988a). Psychosocial risk factors for infectious disease: Assessment of upper respiratory illness during basic training. San Diego, CA: Naval Health Research Center, Technical Report 88-23.

Vickers, R.R., Jr. & Hervig, L.K. (1988b). Psychosocial Risk Factors for Infectious Disease in Basic Training: Demographic and Health History Predictors of Upper Respiratory Illness. San Diego, CA: Naval Health Research Center, Technical Report 88-25.

Vickers, R.R., Jr. & Hervig, L.K. (1988c). Psychosocial Risk Factors for Infectious Disease in Basic Training: Personality Predictors of URI During Basic Training. San Diego, CA: Naval Health Research Center, Technical Report 88-36.

Vickers, R.R., Jr., Hervig, L.K. & Edwards, E.A. (1986). Psychosocial Risk Factors for Upper Respiratory Infections: An Exploratory Study. San Diego, CA: Naval Health Research Center, Report 86-27.

Voors, A.W., Rytel, M.W., Jenkins, C.D., Pierce, W.E. & Stewart, G.T. (1969). Prediction of sickness in Naval recruits by Minnesota Multiphasic Personality Inventory scores. American Review of Respiratory Disease, 99, 420-425.

Wiggins, J.S. (1973). Personality and Prediction: Principles of Person- ality Assessment. Reading, MA: Addison-Wesley, pp. 51-79.

Wysocki, J., Chemers, M.M. & Rhodewalt, F. (1987). Situational demand and self-reports of stress and illness: The moderating influence of self-monitoring. Basic and Applied Social Psychology, 8, 249-258.

Youmans, G.P., Paterson, P.Y. & Sommers, H.M. (1980). The Biologic and Clinical Basis of Infectious Diseases Second Edition). Philadelphia: W. B. Saunders.

Zedeck, S. (1971). Problems with the use of moderator variables. Psychological Bulletin, 76, 295-310.

Zuckerman, M., Loestner, R., DeBoy, T., Garcia, T., Maresca, B.C. & Sartoris, J.M. (1988). To predict some of the people some of the time: A reexamination of the moderator variable approach in personality theory. Journal of Personality and Social Psychology, 54, 1006-1019.

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION (U) UNCLASSIFIED			1b. RESTRICTIVE MARKINGS None			
2a. SECURITY CLASSIFICATION AUTHORITY N/A			3. DISTRIBUTION / AVAILABILITY OF REPORT Approved for public release; distribution unlimited.		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE N/A					
4. PERFORMING ORGANIZATION REPORT NUMBER(S) NHRC Report No. 88-37			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Naval Health Research Center	6b. OFFICE SYMBOL (If applicable) 70		7a. NAME OF MONITORING ORGANIZATION Commander, Naval Medical Command		
6c. ADDRESS (City, State, and ZIP Code) P. O. Box 85122 San Diego, CA 92138-9174			7b. ADDRESS (City, State, and ZIP Code) Department of the Navy Washington, DC 20372		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION Naval Medical Research & Development Command	8b. OFFICE SYMBOL (If applicable)		9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		

8c. ADDRESS (City, State, and ZIP Code) Naval Medical Command National Capital Region Bethesda, MD 20814-5044	10. SOURCE OF FUNDING NUMBERS			
	PROGRAM ELEMENT NO. 62233N	PROJECT NO. MR04101	TASK NO .07	WORK UNIT ACCESSION NO 6004

11 TITLE (Include Security Classification)
(U) Psychosocial Risk Factors for Upper Respiratory Infection: Self-monitoring, Self-consciousness, and Symptom Report Accuracy

12 PERSONAL AUTHOR(S)
Vickers, Ross R., Jr., & Hervig, Linda K.

13a. TYPE OF REPORT Interim	13b. TIME COVERED FROM _____ TO _____	14. DATE OF REPORT (Year, Month, Day) 1988 August 5	15. PAGE COUNT

16 SUPPLEMENTARY NOTATION

17	COSATI CODES		18 SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	

19 ABSTRACT (Continue on reverse if necessary and identify by block number)

Symptom measures are widely used in health research, including that dealing with upper respiratory illness (URI), so improving the accuracy and validity of symptom reports would improve the quality of research results in this area. This study tested the hypotheses that sensitivity to internal states and feelings, i.e., self-consciousness, would increase symptom report accuracy, while the tendency to modify reports of attitudes and feelings in response to external social cues, ie., self-monitoring, would decrease symptom-report accuracy. Support for the self-monitoring hypothesis was provided in an initial study that showed stronger URI-health history associations among low self-monitors than among high self-monitors, but this finding did not replicate in a second study. No support for the self-consciousness hypothesis was found. These negative findings were consistent with the results of prior tests for other types of interactions as predictors of URI. To date, the evidence indicates that a URI risk profile can be constructed of purely additive main effects of health history and personality measures. (U)

20. DISTRIBUTION AVAILABILITY OF ABSTRACT ☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS	21 ABSTRACT SECURITY CLASSIFICATION Unclassified	
22a. NAME OF RESPONSIBLE INDIVIDUAL Vickers, Ross R., Jr.	22b TELEPHONE (Include Area Code) (619) 553-8454	22c OFFICE SYMBOL 70