
Adding *Liebe und Arbeit*: The Full Five-Factor Model and Well-Being

Robert R. McCrae
Paul T. Costa, Jr.
*Gerontology Research Center
National Institutes of Health*

Neuroticism, extraversion, and openness to experience have been shown to have systematic effects on psychological well-being. The remaining dimensions in the five-factor model of personality—agreeableness and conscientiousness—may also contribute to increased life satisfaction and happiness. Self-reports and spouse ratings on the NEO Personality Inventory, a measure of the five factors, were correlated with three measures of psychological well-being in a sample of 429 adult men and women. Consistent with previous research, neuroticism was negatively, and extraversion was positively, related to well-being. Both agreeableness and conscientiousness were also significant independent predictors. Personality dispositions appear to have temperamental, experiential, and instrumental effects on psychological well-being.

Personality traits and emotions are so intimately tied that it is often difficult to distinguish the items on a mood measure from those on a personality inventory. Yet it has only been in the past decade that systematic links have been made between the structure of emotions and the structure of personality traits. Most of this research has focused on the two dimensions of neuroticism (N) and extraversion (E; e.g., Emmons & Diener, 1985; Watson & Clark, in press) and to a lesser extent on openness to experience (O; e.g., Costa & McCrae, 1984). Two other major dimensions of personality, agreeableness (A) and conscientiousness (C), have not previously been seen as major determinants of well-being, but a role for them was suggested by Freud in his famous dictum about the need for love and work in a satisfying life. This article examines the relations of psychological well-being to all five major dimensions of personality.

The five-factor model of personality was first identified some 30 years ago by Tupes and Christal (1961) and

Norman (1963) in studies of natural language adjectives. Similar factors have been identified in analyses of a variety of personality instruments, in self-reports and ratings, and in English, German, and other languages, and these five—N, E, O, A, and C—are widely regarded as providing a more or less comprehensive taxonomy of personality traits (Digman, 1990; McCrae & Costa, 1987). Because the five-factor model is comprehensive, it provides a basis for a systematic study of personality and affect.

Emotions may be studied as subjective states, facial expressions, or physiological reactions. We are concerned here with what is generally called subjective or psychological well-being. Psychologists such as Watson and Tellegen (1985) who have studied the structure of affects have repeatedly found two broad factors, often interpreted as positive and negative affect. These are akin to the basic psychological phenomena of pleasure and pain. Intuitively, it is reasonable to suggest that well-being is highest when life contains many pleasures and few pains, and in 1969 Bradburn proposed a measure of well-being based on the balance of these two elements. He created scales to measure positive affect and negative affect and subtracted the latter from the former to assess affect balance. This affective conceptualization of well-being differs from others based on a cognitive evaluation of life quality, but research has shown

Authors' Note: Portions of this article were presented as part of the symposium, "The Emotional Bases of Personality," Lee Anna Clark and David Watson, Chairs, American Psychological Association convention, August 1989, New Orleans. Correspondence should be addressed to the authors at the Gerontology Research Center, National Institute on Aging, 4940 Eastern Avenue, Baltimore, MD 21224.

PSPB, Vol. 17 No. 2, April 1991 227-232

that scales measuring morale, happiness, and life satisfaction all correlate substantially with the Affect Balance Scale (Costa & McCrae, 1980).

The study of psychological well-being in the past decade has been full of surprises. Research has shown that positive and negative affect are not the polar opposites that their names suggest but, rather, are relatively independent dimensions (Diener & Emmons, 1984) that both contribute to overall happiness. We now know that objective indicators of the quality of life such as physical health, age, and marital and socioeconomic status have little enduring impact on well-being, because individuals rapidly adapt to their life situation (Brickman, Coates, & Janoff-Bulman, 1978).¹ And although well-being measures ostensibly ask about the individual's evaluation of his or her current situation, such measures show substantial stability across periods of many years (Costa, McCrae, & Zonderman, 1987).

All these findings have led to the conclusion that happiness and the chronic emotional reactions that underlie it are probably best understood as reflections of enduring dispositions. In 1980, Costa and McCrae proposed a model relating positive and negative affect to the personality dimensions of N and E. Specifically, they hypothesized that E leads to positive affect, N leads to negative affect, and both, indirectly, influence overall happiness. This model has since been widely replicated (Emmons & Diener, 1985; Hepburn & Eysenck, 1989; Warr, Barter, & Brownbridge, 1983). The explanation for these findings is probably temperamental: extroverts are simply more cheerful and high-spirited than introverts; individuals high in N are more prone to negative affect than those low in N. If temperament is measured directly by asking people about the frequency and intensity with which they experience positive or negative emotions, the resulting scales invariably load on E and N factors (Costa & McCrae, 1989). Most measures of N are chiefly characterized by items asking about chronic psychological distress (Watson & Clark, 1984). Although E scales are generally composed of items asking about social activity and dominance, scales measuring positive emotions load on the same factor. Watson and Clark (in press) have suggested that the broad dimension we call extraversion should be relabeled as positive emotionality.

A recent study by Larsen and Ketelaar (1989) provides some experimental support for this view: E was correlated with response to a positive mood induction, whereas N was related only to response to a negative mood induction. Individuals high in E and low in N are predisposed to be happy.

Relations between the third dimension of personality, O, and affect are qualitatively different. Open individu-

als are characterized both by a broader and deeper scope of awareness and by a need to enlarge and examine experience; they are imaginative, aesthetically responsive, empathic, exploring, curious, and unconventional (McCrae & Costa, in press-a). Humanistic psychologists emphasize these traits as characteristics of fully functioning individuals, and one might expect that open men and women would be higher in psychological well-being. In fact, however, being open is a double-edged sword, because open people experience both the good and the bad more intensely (Costa & McCrae, 1984). O scores are positively correlated with both positive and negative affect scores and thus are unrelated to their difference, overall well-being. O does not have an affect-biasing influence as E and N do; instead, it seems to amplify the experience of both kinds of affect, illustrating an experiential influence on well-being. Although O is not directly related to overall well-being, it is relevant to affective processes and should be related to measures of affective variability (Wessman & Ricks, 1966) and perhaps to measures of affect intensity (Larsen, Diener, & Emmons, 1986).

Although personality traits may directly affect the tendencies to experience positive or negative emotions, they may also have indirect effects on well-being: Certain traits may be instrumental in creating conditions that promote happiness or unhappiness. In particular, the dimensions of A and C might be hypothesized to have instrumental effects on well-being. Agreeable individuals are warm, generous, and loving; conscientious people are efficient, competent, and hard-working. The interpersonal bonds that A fosters and the achievements and the accomplishments that C promotes may contribute to greater quality of life and higher life satisfaction. This is perhaps what Freud meant when he suggested that *Liebe und Arbeit*, love and work, were the keys to psychological health and happiness.

The case for expecting a link between A and happiness has been made by McAdams and Bryant (1987), who cited Erikson, Sullivan, and White on the importance of interpersonal intimacy and caring for psychological health. McAdams and Bryant tested their hypothesis using a Thematic Apperception Test measure of intimacy motivation and self-reports of subjective mental health in a nationwide sample. They found modest support for the hypothesis: Unhappiness in women and strain and uncertainty in men were negatively related to intimacy motivation. Crandall and Putman (1980) have reported positive correlations between life satisfaction and a measure of Adler's social interest, which is clearly akin to A. Probably the first research on the full five-factor model and well-being was reported by

TABLE 1: Intercorrelations of Well-being Measures, With Means and Standard Deviations

| Measure | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------------------------|-------------------|-------------------|------|------|------|------|------|------|-------|-------|
| 1. Positive affect, 1979 | | | | | | | | | | |
| 2. Positive affect, 1981 | .48 | | | | | | | | | |
| 3. Negative affect, 1979 | -.07 ^a | -.11 ^b | | | | | | | | |
| 4. Negative affect, 1981 | -.10 ^b | -.17 | .48 | | | | | | | |
| 5. Affect balance, 1979 | .73 | .39 | -.74 | -.39 | | | | | | |
| 6. Affect balance, 1981 | .37 | .74 | -.39 | -.79 | .51 | | | | | |
| 7. D-T scale, 1979 | .38 | .25 | -.42 | -.36 | .54 | .40 | | | | |
| 8. D-T scale, 1981 | .37 | .40 | -.39 | -.51 | .51 | .59 | .61 | | | |
| 9. Life satisfaction, 1979 | .39 | .22 | -.35 | -.28 | .50 | .33 | .60 | .50 | | |
| 10. Life satisfaction, 1981 | .35 | .38 | -.35 | -.47 | .47 | .55 | .51 | .69 | .64 | |
| <i>M</i> | 3.87 | 3.95 | 1.07 | 1.07 | 2.81 | 2.89 | 4.50 | 4.52 | 43.18 | 43.67 |
| <i>SD</i> | 1.27 | 1.25 | 1.30 | 1.37 | 1.89 | 2.00 | 0.98 | 1.02 | 8.04 | 7.69 |

NOTE: *N*s = 349 to 419. Except as noted, all correlations are significant at $p < .001$.

a. n.s.

b. $p < .05$.

Carp in 1985; she found that rated congeniality was positively related to self-reported happiness in an elderly sample.

There are also reasons to expect that the well-ordered lives of conscientious men and women may also be more fulfilling. Indeed, one of the Bradburn (1969) items asks whether respondents are "pleased about having accomplished something." Holahan (1988) reported a positive correlation between achievement motivation and psychological well-being in a follow-up study of Terman's sample of gifted men and women, and Little (1989) found that perceived efficacy in personal projects was related to both C and greater well-being (cf. Diener, 1984). However, Carp found generally nonsignificant but negative correlations between rated C and happiness in her sample. Clearly, more data are needed.

METHOD

Subjects

Participants in the Baltimore Longitudinal Study of Aging (BLSA; Shock et al., 1984) and their spouses were subjects. Data were obtained from 258 men initially aged 25 to 87 and 171 women initially aged 24 to 81. BLSA participants are generally healthy, well-educated, community-dwelling volunteers.

Measures and Procedure

In 1979 we gave these men and women a set of measures of psychological well-being, including the Bradburn Affect Balance Scales, a single-item assessment of life cre-

ated by Andrews and Withey (1976) called the Delighted-Terrible (or D-T) Scale, and a Life Satisfaction Index that asked subjects to rate their satisfaction with 14 distinct areas in life, including health, money, neighborhood, and work (Costa & McCrae, 1984). The entire battery was repeated in 1981.

Five years later the NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985b, 1989), a measure of the five-factor model of personality, was administered. For a subsample, spouse ratings on the observer form of the NEO-PI were also obtained in 1986. Correlations between self-reported and spouse-rated NEO-PI factors range from .53 to .60 (McCrae & Costa, in press-b).

In this design, personality scores are used to "postdict," rather than predict, well-being measures. However, previous research has shown that personality scores can predict well-being over intervals as long as 10 years (Costa & McCrae, 1980), and personality is sufficiently stable in adulthood to suggest that similar results would have been obtained if the personality measures had preceded or been concurrent with the well-being measures (Costa & McCrae, 1985a). In the present sample, the stability of the N, E, and O scales between 1980 and 1986 ranged from .73 to .86 for men and women; 3-year stability coefficients for brief, preliminary forms of the A and C scales were .63 and .79, respectively (Costa & McCrae, 1988).

RESULTS

Table 1 gives means, standard deviations, and intercorrelations among the well-being measures. The data

TABLE 2: Correlations of NEO Personality Inventory Factors With Measures of Psychological Well-being

| Measure | NEO Personality Inventory Factor | | | | |
|-------------------------|----------------------------------|--------|-------|--------|---------|
| | N | E | O | A | C |
| Positive affect, 1979 | -.09 | .32*** | .14** | .15** | .13** |
| Positive affect, 1981 | -.12* | .24*** | .14** | .10* | .12* |
| Negative affect, 1979 | .40*** | -.06 | .08 | -.12* | -.17* |
| Negative affect, 1981 | .42*** | -.09 | .13* | -.11* | -.24*** |
| Affect balance, 1979 | -.33*** | .25*** | .04 | .18*** | .21*** |
| Affect balance, 1981 | -.37*** | .21*** | .00 | .14** | .24*** |
| D-T scale, 1979 | -.27*** | .19*** | .01 | .12* | .18*** |
| D-T scale, 1981 | -.32*** | .20*** | -.04 | .10 | .20*** |
| Life satisfaction, 1979 | -.29*** | .19*** | .01 | .16*** | .25*** |
| Life satisfaction, 1981 | -.37*** | .22*** | -.05 | .12* | .24*** |

NOTE: $N_s = 364-419$.* $p < .05$; ** $p < .01$; *** $p < .001$.

show relative independence between positive affect and negative affect and substantial intercorrelation among well-being measures. Consistent with other literature (Costa & McCrae, 1981), the 2-year retest coefficients for the well-being measures are moderately large, suggesting the influence of enduring determinants. Examination of the means on the two occasions shows little change in the average level of well-being over the 2-year interval.

The first two columns of Table 2 clearly replicate previous findings about the relations among N, E, and well-being. N is related to negative affect and (negatively) to the three well-being measures; it shows little relation to positive affect. E is related to positive affect and the three global well-being measures but not to negative affect. The third column also replicates previous findings: Open individuals are somewhat higher in both positive and negative affect but do not differ from closed individuals on overall happiness. Consistent with the assumption that personality is the cause rather than the effect of well-being, the magnitude of these postdictive correlations is quite similar to that found in predictive studies (Costa & McCrae, 1980, 1984).

The fourth and fifth columns of Table 2 give correlations between the A and C factors and well-being measures. These two personality dimensions show the same pattern: They are positively related to positive affect, negatively related to negative affect, and positively related to total well-being. C appears to be the stronger predictor in these data.

To assess the independent contributions of A and C to the prediction of well-being, multiple regressions were performed, predicting each of the global well-being measures from the N, E, and O factors and then from all five factors. N, E, and O alone explained 11% to 18% of the variance in well-being scales; when A and C were added, the proportions increased to 19% to 25%,

TABLE 3: Correlations of Spouse-Rated NEO Personality Inventory Factors With Measures of Psychological Well-being

| Measure | NEO Personality Inventory Factor | | | | |
|-------------------------|----------------------------------|------|------|--------|-------|
| | N | E | O | A | C |
| Positive affect, 1979 | -.21** | .14* | .08 | .19** | .14* |
| Positive affect, 1981 | -.09 | .14* | .07 | .19* | .03 |
| Negative affect, 1979 | .44*** | .00 | .08 | -.21** | -.07 |
| Negative affect, 1981 | .39*** | .08 | .17* | -.17* | -.18* |
| Affect balance, 1979 | -.44*** | .09 | -.01 | .27*** | .14* |
| Affect balance, 1981 | -.33*** | .04 | -.08 | .24** | .15* |
| D-T scale, 1979 | -.37*** | .07 | -.05 | .19** | .14* |
| D-T scale, 1981 | -.38*** | .15* | .16* | .27*** | .03 |
| Life satisfaction, 1979 | -.36*** | .07 | -.02 | .25*** | .24** |
| Life satisfaction, 1981 | -.27*** | .11 | .08 | .21** | .19* |

NOTE: $N_s = 146-163$.* $p < .05$; ** $p < .01$; *** $p < .001$, one-tailed.

and both A and C were individually significant in all six regressions. A and C clearly add new information to the prediction of well-being.

Additional regressions were performed to assess the contribution of personality interaction effects. Ten interaction terms were created by multiplying pairs of personality factors (N \times E, N \times O, etc.). These terms were added in 10 stepwise multiple regressions after entering the five main effects. Only 10 of the 100 possible effects were significant at the .05 level, and none of these were replicated across both occasions for the same criterion variable. It thus appears that the five major dimensions of personality have independent influences on well-being.

It might be argued that the correlations in Table 2 are artifactual, attributable to shared method variance in self-reported personality scales and self-reported well-being. Previous research has shown that the association between personality and well-being is probably not due to a shared social desirability bias, at least in normal, volunteer samples (McCrae, 1986). However, the present data provide another opportunity to test this hypothesis through the use of spouse ratings of personality, which are unlikely to have the same response biases as self-reports of well-being. Because these correlations were viewed as replications, one-tailed tests were used to evaluate the significance of the correlations.

As Table 3 shows, spouse ratings of personality generally replicate the pattern of relations found in Table 2. The most notable exception is the general failure of spouse-rated E to predict global well-being (significant in only one of six cases). Spouse-rated N is a strong predictor of well-being, and spouse-rated A appears to be even stronger than self-reported A as a predictor of self-reported well-being. Correlations with O and C are weaker, but given the difference in observers and the

much smaller sample size, the similarities are more striking than the differences. In particular, these data make it clear that the associations between personality and affect are not method artifacts.

DISCUSSION

Different dimensions of personality clearly have qualitatively different patterns of association with measures of affect: N leads to more negative affect and less well-being; E leads to more positive affect and more well-being; O leads to more of both positive and negative affect, with no net effect on well-being; and both A and C lead to more positive and less negative affect and thus higher levels of well-being. At the present there is much more evidence for the role of N and E in well-being than for A and C, but there are both theoretical and empirical grounds for the inclusion of measures of all five factors of personality in studies on personality and emotion.

Perhaps the most interesting questions concern the interpretation of the findings relating A and C to well-being. The correlational results presented here are consistent with the view that A and C exert an instrumental influence on well-being, but more specific causal tests are needed to sustain this hypothesis. Larsen and Ketelaar's (1989) mood induction procedures could be used as one paradigm for exploring this question: If the relations are instrumental—that is, occur because of the life situations that agreeable and conscientious people create for themselves—these two dimensions should *not* be related to responses to mood inductions that are imposed on them by experimental manipulation.

The instrumental hypothesis suggests that loving and hard-working people have more positive experiences and fewer negative experiences because these traits foster social and achievement-related successes; their traits contribute to a life with more daily uplifts and fewer daily hassles (Kanner, Coyne, Schaefer, & Lazarus, 1981). A more direct test of this causal hypothesis would include the measurement of interpersonal interactions and task completions that might act as intervening variables between A and C and well-being.

Note that this hypothesis is essentially interactive: Well-being will be increased only if individuals have both the appropriate personality dispositions and the opportunity for their expression. Most individuals can select environments compatible with their personality dispositions (Buss, 1987), but individuals with limited control, such as nursing home residents, may benefit from interventions designed to encourage nurturant feelings and personal achievements. Pet visitations may increase well-being (e.g., Wallace & Nadermann, 1987), but probably only for agreeable people. Involuntary retirement

may reduce well-being, but only for conscientious people who cannot find other outlets for their needs for achievement.²

Health, wealth, and privilege contribute little to life satisfaction, because individuals quickly adapt to these conditions. It appears, however, that individuals do not adapt to the satisfactions of love and work. For those individuals who particularly value them, providing opportunities for the expression of agreeableness and conscientiousness may be the best way to increase well-being.

NOTES

1. Headey and Wearing (1989) recently showed that life events have an impact on subjective well-being at least within a 2-year period. Thus, the processes of adaptation appear to require an appreciable amount of time, and relatively recent changes in status may affect well-being.

2. Another kind of interaction would suggest that it is the fit of personality with environment that increases well-being (see Diener, 1984). For example, low A might contribute to higher well-being during military operations, and low C might lead to greater well-being under conditions of enforced idleness. However, the positive correlations of these variables with well-being in the present sample suggests that such environmental interactions, if they occur, are relatively rare in community-dwelling individuals.

REFERENCES

- Andrews, F. M., & Withey, S. B. (1976). *Social indicators of well-being: Americans' perceptions of life quality*. New York: Plenum.
- Bradburn, N. M. (1969). *The structure of psychological well-being*. Hawthorne, NY: Aldine.
- Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is happiness relative? *Journal of Personality and Social Psychology*, *36*, 917-927.
- Buss, D. M. (1987). Selection, evocation, and manipulation. *Journal of Personality and Social Psychology*, *53*, 1214-1221.
- Carp, F. M. (1985). Relevance of personality traits to adjustment in group living. *Journal of Gerontology*, *40*, 544-551.
- Costa, P. T., Jr., & McCrae, R. R. (1980). Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people. *Journal of Personality and Social Psychology*, *38*, 668-678.
- Costa, P. T., Jr., & McCrae, R. R. (1981). Stress, smoking, and psychological well-being: The illusory benefits of smoking. *Advances in Behavior Research and Therapy*, *3*, 125-150.
- Costa, P. T., Jr., & McCrae, R. R. (1984). Personality as a lifelong determinant of well-being. In C. Malatesta & C. Izard (Eds.), *Affective processes in adult development and aging* (pp. 141-157). Beverly Hills, CA: Sage.
- Costa, P. T., Jr., & McCrae, R. R. (1985a). Concurrent validation after 20 years: Implications of personality stability for its assessment. In J. N. Butcher & C. D. Spielberger (Eds.), *Advances in personality assessment* (Vol. 4, pp. 31-54). Hillsdale, NJ: Lawrence Erlbaum.
- Costa, P. T., Jr., & McCrae, R. R. (1985b). *The NEO Personality Inventory manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., Jr., & McCrae, R. R. (1988). Personality in adulthood: A six-year longitudinal study of self-reports and spouse ratings on the NEO Personality Inventory. *Journal of Personality and Social Psychology*, *54*, 853-863.
- Costa, P. T., Jr., & McCrae, R. R. (1989). *The NEO-PI/NEO-FFI manual supplement*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., Jr., McCrae, R. R., & Zonderman, A. B. (1987). Environmental and dispositional influences on well-being: Longitudinal followup of an American national sample. *British Journal of Psychology*, *78*, 299-306.

- Crandall, J. E., & Putman, E. L. (1980). Social interest and psychological well-being. *Journal of Individual Psychology, 36*, 151-168.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542-575.
- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*, 1105-1117.
- Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology, 41*, 417-440.
- Emmons, R. A., & Diener, E. (1985). Personality correlates of subjective well-being. *Personality and Social Psychology Bulletin, 11*, 89-97.
- Headey, B., & Wearing, A. (1989). Personality, life events, and subjective well-being: Toward a dynamic equilibrium model. *Journal of Personality and Social Psychology, 57*, 731-739.
- Hepburn, L., & Eysenck, M. W. (1989). Personality, average mood and mood variability. *Personality and Individual Differences, 10*, 975-983.
- Holahan, C. K. (1988). Relation of life goals at age 70 to activity participation and health and psychological well-being among Terman's gifted men and women. *Psychology and Aging, 3*, 286-291.
- Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine, 4*, 1-39.
- Larsen, R. J., Diener, E., & Emmons, R. A. (1986). Affect intensity and reactions to daily life events. *Journal of Personality and Social Psychology, 51*, 803-814.
- Larsen, R. J., & Ketelaar, T. (1989). Extraversion, neuroticism, and susceptibility to positive and negative mood induction procedures. *Personality and Individual Differences, 10*, 1221-1228.
- Little, B. R. (1989). Personal Projects Analysis: Trivial pursuits, magnificent obsessions and the search for coherence. In D. M. Buss & N. Cantor (Eds.), *Personality psychology: Recent trends and emerging directions*. New York: Springer-Verlag.
- McAdams, D. P., & Bryant, F. B. (1987). Intimacy motivation and subjective mental health in a nationwide sample. *Journal of Personality, 55*, 395-413.
- McCrae, R. R. (1986). Well-being scales do not measure social desirability. *Journal of Gerontology, 41*, 390-392.
- McCrae, R. R., & Costa, P. T., Jr. (1987). Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90.
- McCrae, R. R., & Costa, P. T., Jr. (in press-a). Conceptions and correlates of openness to experience. In S. R. Briggs, R. Hogan, & W. H. Jones (Eds.), *Handbook of personality psychology*. Orlando, FL: Academic Press.
- McCrae, R. R., & Costa, P. T., Jr. (in press-b). Different points of view: Self-reports and ratings in the assessment of personality. In J. P. Forgas & M. J. Innes (Eds.), *Proceedings of the 24th International Congress of Psychology: Vol. 1. Social psychology*. Amsterdam: Elsevier.
- Norman, W. T. (1963). Toward an adequate taxonomy of personality attributes: Replicated factor structure in peer nomination personality ratings. *Journal of Abnormal and Social Psychology, 66*, 574-583.
- Shock, N. W., Greulich, R. C., Andres, R., Arenberg, D., Costa, P. T., Jr., Lakatta, E. G., & Tobin, J. D. (1984). *Normal human aging: The Baltimore Longitudinal Study of Aging* (NIH Publication No. 84-2450). Bethesda, MD: National Institutes of Health.
- Tupes, E. C., & Christal, R. E. (1961). *Recurrent personality factors based on trait ratings* (USAF ASD Tech. Rep. No. 61-97). Lackland Air Force Base, TX: U.S. Air Force.
- Wallace, J. E., & Nadermann, S. (1987). Effects of pet visitations on semiambulatory nursing home residents: Problems in assessment. *Journal of Applied Gerontology, 6*, 183-188.
- Warr, P., Barter, J., & Brownbridge, G. (1983). On the independence of positive and negative affect. *Journal of Personality and Social Psychology, 44*, 644-651.
- Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96*, 465-490.
- Watson, D., & Clark, L. A. (in press). Extraversion and its positive emotional core. In S. R. Briggs, W. H. Jones, & R. Hogan (Eds.), *Handbook of personality psychology*. Orlando, FL: Academic Press.
- Watson, D., & Tellegen, A. (1985). Toward a consensual structure of mood. *Psychological Bulletin, 98*, 219-235.
- Wessman, A. E., & Ricks, D. F. (1966). *Mood and personality*. New York: Holt, Rinehart & Winston.