

## The Benefits of Frequent Positive Affect: Does Happiness Lead to Success?

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Numerous studies show that happy individuals are successful across multiple life domains, including marriage, friendship, income, work performance, and health. The authors suggest a conceptual model to account for these findings, arguing that the happiness-success link exists not only because success makes people happy, but also because positive affect engenders success. Three classes of evidence—cross-sectional, longitudinal, and experimental—are documented to test their model. Relevant studies are described and their effect sizes combined meta-analytically. The results reveal that happiness is associated with and precedes numerous successful outcomes, as well as behaviors paralleling success. Furthermore, the evidence suggests that positive affect—the hallmark of well-being—may be the cause of many of the desirable characteristics, resources, and successes correlated with happiness. Limitations, empirical issues, and important future research questions are discussed.

**Keywords:** happiness, subjective well-being, positive affect, positive emotions, meta-analysis

- “A merry heart goes all the day, Your sad tires in a mile-a.”  
—William Shakespeare
- “The joyfulness of a man prolongeth his days.”  
—Sirach 30:22
- “The days that make us happy make us wise.”  
—John Masefield

Research on well-being consistently reveals that the characteristics and resources valued by society correlate with happiness. For example, marriage (Mastekaasa, 1994), a comfortable income (Diener & Biswas-Diener, 2002), superior mental health (Koivumaa-Honkanen et al., 2004), and a long life (Danner, Snowdon, & Friesen, 2001) all covary with reports of high happiness levels. Such associations between desirable life outcomes and happiness have led most investigators to assume that success makes people happy. This assumption can be found throughout the literature in this area. For example, Diener, Suh, Lucas, and Smith

(1999) reviewed the correlations between happiness and a variety of resources, desirable characteristics, and favorable life circumstances. Although the authors recognized that the causality can be bidirectional, they frequently used wording implying that cause flows from the resource to happiness. For example, they suggested that marriage might have “greater benefits for men than for women” (p. 290), apparently overlooking the possibility that sex differences in marital patterns could be due to differential selection into marriage based on well-being. Similarly, after reviewing links between money and well-being, Diener and his colleagues pointed out that “even when extremely wealthy individuals are examined, the *effects* [italics added] of income are small” (p. 287), again assuming a causal direction from income to happiness. We use quotes from one of us to avoid pointing fingers at others, but such examples could be garnered from the majority of scientific publications in this area. The quotes underscore the pervasiveness of the assumption among well-being investigators that successful outcomes foster happiness. The purpose of our review is not to disconfirm that resources and success lead to well-being—a notion that is likely valid to some degree. Our aim is to show that the alternative causal pathway—that happy people are likely to acquire favorable life circumstances—is at least partly responsible for the associations found in the literature.

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### A PRELIMINARY CONCEPTUAL MODEL

In this article, we review evidence suggesting that happy people—those who experience a preponderance of positive emotions—tend to be successful and accomplished across multiple life domains. Why is happiness linked to successful outcomes? We propose that this is not merely because success leads to happiness, but because positive affect (PA) engenders success. Positively

valenced moods and emotions lead people to think, feel, and act in ways that promote both resource building and involvement with approach goals (Elliot & Thrash, 2002; Lyubomirsky, 2001). An individual experiencing a positive mood or emotion is encountering circumstances that he or she interprets as desirable. Positive emotions signify that life is going well, the person's goals are being met, and resources are adequate (e.g., Cantor et al., 1991; Carver & Scheier, 1998; Clore, Wyer, Dienes, Gasper, & Isbell, 2001). In these circumstances, as Fredrickson (1998, 2001) has so lucidly described, people are ideally situated to "broaden and build." In other words, because all is going well, individuals can expand their resources and friendships; they can take the opportunity to build their repertoire of skills for future use; or they can rest and relax to rebuild their energy after expending high levels of effort. Fredrickson's model (Fredrickson, 2001) suggests that a critical adaptive purpose of positive emotions is to help prepare the organism for future challenges. Following Fredrickson, we suggest that people experiencing positive emotions take advantage of their time in this state—free from immediate danger and unmarked by recent loss—to seek new goals that they have not yet attained (see Carver, 2003, for a related review).

The characteristics related to positive affect include confidence, optimism, and self-efficacy; likability and positive construals of others; sociability, activity, and energy; prosocial behavior; immunity and physical well-being; effective coping with challenge and stress; and originality and flexibility. What these attributes share is that they all encourage active involvement with goal pursuits and with the environment. When all is going well, a person is not well served by withdrawing into a self-protective stance in which the primary aim is to protect his or her existing resources and to avoid harm—a process marking the experience of negative emotions. Positive emotions produce the tendency to approach rather than to avoid and to prepare the individual to seek out and undertake new goals. Thus, we propose that the success of happy people rests on two main factors. First, because happy people experience frequent positive moods, they have a greater likelihood of working actively toward new goals while experiencing those moods. Second, happy people are in possession of past skills and resources, which they have built over time during previous pleasant moods.

This unifying framework builds on several earlier bodies of work—the broaden-and-build model of positive emotions (Fredrickson, 1998, 2001), the notion that positive emotions convey specific information to the person (Ortony, Clore, & Collins, 1988), the idea of positivity offset (Ito & Cacioppo, 1999), work on the approach-related aspects of PA (Watson, 2000), and, finally, Isen's (e.g., 2000) groundbreaking research on the behaviors that follow positive mood inductions. We extend the earlier work in predicting that chronically happy people are in general more successful, and that their success is in large part a consequence of their happiness and frequent experience of PA. Although the vast majority of research on emotions has been on negative states, a body of literature has now accumulated that highlights the importance of positive emotions in people's long-term flourishing.

### Classes of Evidence

Figure 1 displays our general conceptual model, which proposes that successful outcomes are caused by happiness and do not merely correlate with it or follow from it. Specifically, below the

conceptual model, we display four classes of evidence that can be used to test it. The first type of evidence (Type A) represents positive correlations derived from cross-sectional studies. Although it is a truism that correlation does not imply causation, correlations must generally be positive to be consistent with propositions about causality. Except in the rare case in which strong third-variable suppressor effects exist across studies, an absence of correlation between two variables indicates an absence of causality in either direction. Thus, correlational evidence is germane to our argument because the absence of positive correlations suggests that happiness does not cause success.

The second class of evidence (Type B) is based on longitudinal research, and is somewhat more informative about causal direction than cross-sectional correlations. If one variable precedes another in time and other potential causal variables are statistically controlled, the resulting causal model can be used to reject a causal hypothesis. In cases in which changes in variable *X* are shown to precede changes in variable *Y*, this form of evidence is even more strongly supportive of a causal connection, although the influence of third variables might still contaminate the conclusions and leave the direction of cause in doubt. Evidence of Type C, the classic laboratory experiment, is commonly believed to represent the strongest evidence for causality, although even in this case it can be difficult to determine exactly what aspect of the experimental manipulation led to changes in the dependent variable. Finally, long-term experimental intervention studies (Type D evidence) would offer the strongest test of our causal model, although again the active ingredients in the causal chain are usually not known with certainty.

### Empirical Tests of Model and Organizational Strategy

Because no single study or type of evidence is definitive, an argument for causality can best be made when various classes of evidence all converge on the same conclusion. Therefore, we document several types of evidence in our article in order to most rigorously test the idea that happiness leads to success. Our review covers the first three classes of evidence (Types A, B, and C) and is organized around five focal questions arising from these three categories:

1. Cross-sectional studies (Type A)
  - Question 1: Are happy people successful people?
  - Question 2: Are long-term happiness and short-term PA associated with behaviors paralleling success—that is, with adaptive characteristics and skills?
2. Longitudinal studies (Type B)
  - Question 3: Does happiness precede success?
  - Question 4: Do happiness and positive affect precede behaviors paralleling success?
3. Experimental studies (Type C)
  - Question 5: Does positive affect lead to behaviors paralleling success?

First, we document the extensive cross-sectional correlational evidence (Type A), as shown in Figure 1. The first question addressed by this evidence is the one that forms the basis of our causal hypothesis—that is, are happy people more likely to suc-

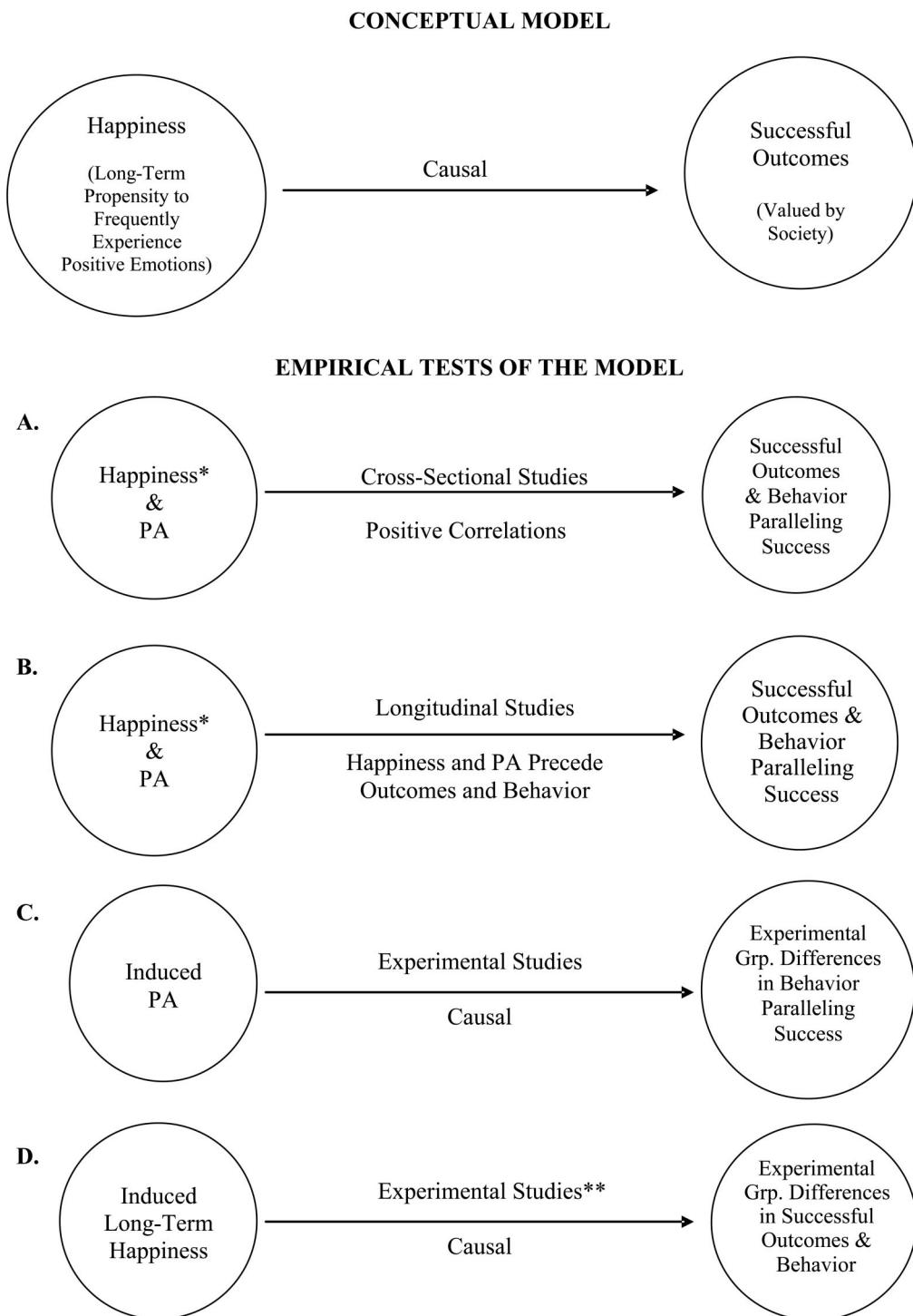


Figure 1. Empirically testing the conceptual model. PA = positive affect; Grp. = group.

ceed at culturally valued goals (e.g., concerning work, love, and health) than their less happy peers? However, the large number of available correlational studies in this category also includes relevant research examining behavior and cognition that parallel successful life outcomes—that is, the characteristics, resources, and

skills that help people succeed (e.g., attributes such as self-efficacy, creativity, sociability, altruism, immunity, and coping). Accordingly, the second question addressed by this evidence explores the relations of behavior paralleling success to long-term happiness and short-term PA. Because we define happiness as the

frequent experience of positive emotions over time (see below), our model assumes that the correlations involving long-term happiness are parallel to those of short-term positive moods. In conclusion, only if the correlations generated by Questions 1 and 2 are generally positive will we consider our causal hypothesis further.

Second, we consider longitudinal studies, which address two further questions. Is happiness at Time 1 associated with successful outcomes at Time 2 (Question 3)? Is happiness and PA at Time 1 correlated with behaviors paralleling success at Time 2 (Question 4)? In summary, prior levels of happiness and positive affect must correlate with later levels of successful outcomes and behavior for our causal hypothesis not to be rejected.

In laboratory experimentation, the third type of evidence, causality is put to a stronger test. In this case, however, because of the limits of the laboratory, only short-term changes in behavior and cognitions that parallel successful life outcomes are assessed. Thus, the fifth and final question we address is whether PA causes the cognitive and behavioral characteristics paralleling success. Again, because positive affect is defined here as the basic constituent of happiness, our model requires that the outcomes of short-term positive moods are parallel to the successful outcomes in our conceptual model. Furthermore, this question is critical, as it speaks to whether PA may be a mediator underlying the relationship between happiness and flourishing—that is, whether PA causes the adaptive characteristics that help happy people succeed.

Although the fourth type of evidence shown in Figure 1 (Type D) would provide the strongest type of data for our model, unfortunately, to our knowledge no studies of this type exist. Nevertheless, support for our conceptual model from all three of the previously described types of evidence, while not definitive, will suggest a likelihood that our causal model is correct. Furthermore, combining the three types of evidence represents an advance beyond laboratory experimentation alone, because the relatively greater rigor and control provided by experimentation are supplemented by the relatively greater ecological validity provided by the other types of studies. Thus, the first two classes of evidence (Types A and B) speak to the plausibility of generalizing the causal laboratory findings to the context of success and thriving in everyday life. Meanwhile, by revealing the processes uncovered in the laboratory, the experimental evidence (Type C) illuminates the possible causal sequence suspected in the correlational data. Taken together, consistent findings from all three types of data offer a stronger test than any single type of data taken alone.

After describing our methodology and defining our terms, we address each of the five focal questions in order, documenting the three classes (A, B, and C) of relevant empirical evidence. Then, we turn to a discussion of several intriguing issues and questions arising out of this review, caveats and limitations, and important further research questions.

### *Methodological Approach*

To identify the widest range of published papers and dissertations, we used several search strategies (Cooper, 1998). First, we searched the PsycINFO online database, using a variety of key words (e.g., *happiness*, *satisfaction*, *affect*, *emotion*, and *mood*). Next, using the ancestry method, the reference list of every empirical, theoretical, and review paper and chapter was further combed for additional relevant articles. To obtain any papers that

might have been overlooked by our search criteria, as well as to locate work that is unpublished or in press, we contacted two large electronic listserves, many of whose members conduct research in the area of well-being and emotion—the Society of Personality and Social Psychology listserv and the Quality of Life Studies listserv. Twenty-four additional relevant articles were identified with this method.

The final body of literature was composed of 225 papers, of which 11 are unpublished or dissertations. From these 225 papers, we examined 293 samples, comprising over 275,000 participants, and computed 313 independent effect sizes. A study was included in our tables if it satisfied the following criteria. First, measures of happiness, PA, or a closely related construct had to be included, in addition to assessment of at least one outcome, characteristic, resource, skill, or behavior. Second, the data had to include either a zero-order correlation coefficient or information that could be converted to an *r* effect size (e.g., *t* tests, *F* tests, means and standard deviations, and chi-squares). If a study did not report an *r* effect size, we computed one from descriptive statistics, *t* statistics, *F* ratios, and tables of counts (see Rosenthal, 1991). If no relevant convertible statistics were presented, other than a *p* value, we calculated the *t* statistic from the *p* value and an *r*-sub(equivalent) (Rosenthal & Rubin, 2003). When a paper reported *p* < .05, *p* < .01, or *ns*, we computed *r*-sub(equivalent) with *p* values of .0245, .005, and .50 (one-tailed), respectively, which likely yielded a highly conservative estimate of the effect size. Finally, the sample size had to be available. When possible, we also contacted authors for further information.

Descriptions of the critical elements of each study (i.e., authors, year, sample size, happiness/PA measure or induction, related construct, and effect size [*r*]) are included in Tables 1, 2, and 3, which present cross-sectional, longitudinal, and experimental work, respectively. Table 2 additionally presents the length of time between assessments, and Table 3 includes the comparison groups used in the studies. Studies with subscripts after their name are those that appear in more than a single section or table, usually because multiple outcome variables are included.

Furthermore, mirroring our documentation of the literature presented in this paper, Tables 1–3 are subdivided into substantive categories (or panels). For example, Table 1 is subdivided into nine categories—work life, social relationships, health, perceptions of self and others, sociability and activity, likability and cooperation, prosocial behavior, physical well-being and coping, and, finally, problem solving and creativity. The mean and median effect size (*r*), weighted and unweighted by sample size, as well as a test of heterogeneity, is provided for each category for the three classes of data (cross-sectional, longitudinal, and experimental) in Table 4.

Tables 1, 2, and 3 report all effect sizes of interest to readers—including instances of two or more effect sizes generated from the same sample or dataset. For example, the relation of happiness with income and marital status derived from a single study may appear in two different panels of a table (i.e., work life and social relationships). Alternatively, the correlation between happiness and coping derived from a single longitudinal study may appear in two different tables (e.g., the cross-sectional table and the longitudinal table). However, in order to meta-analytically combine the 464 effect sizes listed in Tables 1–3, we had to ensure a degree of

(text continues on page 816)

**Table 1**  
*Study Information and Effect Sizes for Nine Categories of Cross-Sectional Research*

Study	n	Happiness/PA measure	Correlated construct	Effect size (r)
Work life				
Credé et al., 2005	959	PANAS	Organizational citizenship behavior	.37
Credé et al., 2005	959	PANAS	Counterproductive work behavior	-.25
Credé et al., 2005	959	PANAS	Job withdrawal	-.25
Cropanzano & Wright, 1999 <sub>a</sub> (first assessment)	60	Index of Psychological Well-Being	Supervisory evaluations	.29
Cropanzano & Wright, 1999 <sub>a</sub> (second assessment)	60	Index of Psychological Well-Being	Supervisory evaluations	.34
DeLuga & Mason, 2000	92	Affectometer 2	Job performance	.22
Donovan, 2000	188	Current Mood Report	Organizational citizenship behavior	.20
Donovan, 2000	188	Current Mood Report	Turnover intentions	-.38
Donovan, 2000	188	Current Mood Report	Work withdrawal	-.20
Donovan, 2000	188	Current Mood Report	Organizational retaliatory behavior	-.22
Donovan, 2000	188	Current Mood Report	Satisfaction with work	.50
Foster et al., 2004	41	Job Affect Scale	Organizational climate for performance	.32
Foster et al., 2004	41	Job Affect Scale	Employee health and well-being	.29
Frisch et al., 2004	3,638	Quality of Life Inventory	Academic retention absenteeism	.18
George, 1989	254	Job Affect Scale		-.28
George, 1995	53	PANAS (leader)	Judged customer service	.41
George, 1995	53	PANAS (aggregated group)	Judged customer service	.35
Graham et al., in press <sub>a</sub> (1995 assessment)	4,524	One-item happiness	Income	.20 <sub>b</sub>
Graham et al., in press <sub>a</sub> (2000 assessment)	5,134	One-item happiness	Income	.16 <sub>b</sub>
Howell et al., in press	307	SWLS	Material wealth	.23
Jundt & Hinsz, 2001	164	Seven-point semantic differentials	Task performance	.19
Krueger et al., 2001 <sub>a</sub>	397	MPQ positive emotionality	Self-reported altruism	.44
Lucas et al., 2004	24,000	One-item happiness	Income	.20
Magen & Aharoni, 1991 <sub>a</sub>	260	Four-item positive affect	Transpersonal commitment	.21
Magen & Aharoni, 1991 <sub>a</sub>	260	Four-item positive affect	Involvement in community service	.36
Miles et al., 2002	203	Job-Related Affective Well-Being Scale	Organizational citizenship behavior	.23
Seligman & Schulman, 1986 <sub>a</sub> (Study 1)	94	Attributional Style Questionnaire	Quarterly insurance commissions	.18
Staw & Barsade, 1993 <sub>a</sub>	83	Three-measure composite of positive affectivity	Judged managerial performance	.20
Staw et al., 1994 <sub>a</sub>	272	Experience and expression of positive emotion on the job	Job autonomy, meaning, and variety	.22
Staw et al., 1994 <sub>a</sub>	272	Experience and expression of positive emotion on the job	Gross annual salary	.12
Staw et al., 1994 <sub>a</sub>	272	Experience and expression of positive emotion on the job	Supervisory evaluations (creativity)	.30
Thoits & Hewitt, 2001 <sub>a</sub>	3,617	One-item happiness	Time spent volunteering	.09
Totterdell, 2000*	17	One-item happiness (12 times over 4 days)	Cricket batting average	.36
Van Katwyk et al., 2000 <sub>a</sub> (Study 3)	111	PANAS	Interpersonal conflict	-.12
Van Katwyk et al., 2000 <sub>a</sub> (Study 3)	111	PANAS	Intention to quit	-.33
Weiss et al., 1999 <sub>a</sub>	24	Fordyce HM Scale	Job satisfaction	.29
Wright & Cropanzano, 1998	52	PANAS	Emotional exhaustion	-.39
Wright & Cropanzano, 2000 (Study 1)	47	Index of Psychological Well-Being	Job performance	.32
Wright & Cropanzano, 2000 (Study 2)	37	Index of Psychological Well-Being	Supervisory evaluations	.34
Wright & Staw, 1999 <sub>a</sub> (Study 1, second assessment)	45	Index of Psychological Well-Being	Supervisory evaluations	.33
Wright & Staw, 1999 <sub>a</sub> (Study 2, first assessment)	62	Index of Psychological Well-Being	Supervisory evaluations	.25
Wright & Staw, 1999 <sub>a</sub> (Study 2, second assessment)	64	Index of Psychological Well-Being	Supervisory evaluations	.43
Social relationships				
Baldassare et al., 1984	202	Four-item happiness	Instrumental support	.17
Baldassare et al., 1984	202	Four-item happiness	Emotional support	.15
Baldassare et al., 1984	202	Four-item happiness	Companionship	.30
Berry & Willingham, 1997	127	PANAS	Commitment to current relationship	.27
Cooper et al., 1992 <sub>a</sub> (Study 1 & Study 2)	118	SWLS	Satisfaction with friends	.31
Cooper et al., 1992 <sub>a</sub> (Study 2)	118	SWLS	Satisfaction with social activities	.37

(table continues)

Table 1 (continued)

Study	n	Happiness/PA measure	Correlated construct	Effect size (r)
Social relationships (continued)				
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Relationships with close friends	.48
Diener et al., 2000	59,169	One-item life satisfaction	Marital status	.07 <sub>b</sub>
Gladow & Ray, 1986 <sup>a</sup>	63	One-item happiness	Support from friends	.35
Gladow & Ray, 1986 <sup>a</sup>	63	One-item happiness	Support from neighbors	.31
Glenn & Weaver, 1981 <sup>a</sup> (Black female sample)	89	One-item happiness	Marital happiness	.18
Glenn & Weaver, 1981 <sup>a</sup> (Black male sample)	167	One-item happiness	Marital happiness	.22
Glenn & Weaver, 1981 <sup>a</sup> (White female sample)	820	One-item happiness	Marital happiness	.53
Glenn & Weaver, 1981 <sup>a</sup> (White male sample)	1,872	One-item happiness	Marital happiness	.37
Graham et al., in press <sup>a</sup> (1995 assessment)	4,524	One-item happiness	Marital status	.03 <sub>b</sub>
Graham et al., in press <sup>a</sup> (2000 assessment)	5,134	One-item happiness	Marital status	.02 <sub>b</sub>
Headey et al., 1991 <sup>a</sup> (1981 assessment)	649	Life-as-a-Whole Index	Satisfaction with marriage	.47
Headey et al., 1991 <sup>a</sup> (1983 assessment)	649	Life-as-a-Whole Index	Satisfaction with marriage	.55
Headey et al., 1991 <sup>a</sup> (1985 assessment)	649	Life-as-a-Whole Index	Satisfaction with marriage	.49
Headey et al., 1991 <sup>a</sup> (1987 assessment)	649	Life-as-a-Whole Index	Satisfaction with marriage	.47
Kozma & Stones, 1983	600	MUNSH	Marital status	.20
Lee & Ishii-Kuntz, 1987 (male sample)	1,321	Seven-item morale	No. of close friends	.23
Lee & Ishii-Kuntz, 1987 (male sample)	1,321	Seven-item morale	Loneliness	-.50
Lee & Ishii-Kuntz, 1987 (female sample)	1,551	Seven-item morale	No. of close friends	.19
Lee & Ishii-Kuntz, 1987 (female sample)	1,551	Seven-item morale	Loneliness	-.51
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with friends	.50
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with recreation	.51
Mastekaasa, 1994	25,810	Bradburn's Scales, one-item life satisfaction, one-item happiness	Marital status	.29
Mishra, 1992 <sup>a</sup>	720	Index of Life Satisfaction	Social interactions with nonfamily members	.41
Mroczek & Spiro, 2005 <sup>a</sup>	1,927	Life Satisfaction Inventory	Marital status	.23
Pfeiffer & Wong, 1989 <sup>a</sup>	59	MUNSH	Jealousy in specific relationship	-.03
Phillips, 1967* (healthy sample)	430	One-item happiness	Social participation	.17
Requena, 1995 (Spanish sample)	1,084	One-item happiness	No. of friends	.13
Requena, 1995 (U.S. sample)	1,534	One-item happiness	No. of friends	.08
Ruvolo, 1998 <sup>a</sup> (husbands sample)	317	One-item happiness	Marital well-being	.12
Ruvolo, 1998 <sup>a</sup> (husbands sample)	317	One-item happiness	Spouse's marital well-being	.16
Ruvolo, 1998 <sup>a</sup> (wives sample)	317	One-item happiness	Marital well-being	.41
Ruvolo, 1998 <sup>a</sup> (wives sample)	317	One-item happiness	Spouse's marital well-being	.34
Stack & Eshleman, 1998 (male sample)	9,237	One-item happiness	Marital status	.15 <sub>b</sub>
Stack & Eshleman, 1998 (female sample)	10,127	One-item happiness	Marital status	.16 <sub>b</sub>
Staw et al., 1994 <sup>a</sup>	272	Experience and expression of positive emotion on the job	Emotional and tangible support from supervisors	.33
Strayer, 1980 <sup>a</sup>	14	Observational count of happy affect	Observational count of empathic responses to others	.59
Willi, 1997	383	Relationship-relevant happiness	Extent in love with partner	.19
Health				
Achat et al., 2000 <sup>a</sup>	659	LOT	Vitality	.14 <sub>b</sub>
Bogner et al., 2001	168	SWLS	History of substance abuse	-.27
Chang & Farrehi, 2001	402	LOT-Revised	Depressive symptoms	-.36
Chang & Farrehi, 2001	402	SWLS	Depressive symptoms	-.57
Collins et al., 1992	73	MAACL-Revised	Quality of life	.32
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Depression	-.61
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Hypochondriasis	-.24
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Schizophrenia	-.53
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	Pain	-.42
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	ER visits	-.06 <sub>b</sub>
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	Hospital visits	-.06 <sub>b</sub>
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	Doctor calls	-.08 <sub>b</sub>
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	Medication use	-.08 <sub>b</sub>
Gil et al., 2004 <sup>a</sup>	41	Daily Mood Scale	Work absences	-.09 <sub>b</sub>

Table 1 (continued)

Study	n	Happiness/PA measure	Correlated construct	Effect size (r)
<i>Health (continued)</i>				
Graham et al., in press <sub>a</sub> (1995 assessment)	4,524	One-item happiness	Health problems	-.03 <sub>b</sub>
Graham et al., in press <sub>a</sub> (2000 assessment)	5,134	One-item happiness	Health problems	-.05 <sub>b</sub>
Kashdan & Roberts, 2004 <sub>a</sub>	104	PANAS	Social phobia/anxiety	-.34
Kehn, 1995 <sub>a</sub>	98	Life Satisfaction Index	Global health	.43
Laidlaw et al., 1996	38	One-item peacefulness	Size of allergic reaction	-.33
Lobel et al., 2000	129	LOT	Delivery of low-birth-weight infants	-.20
Lu & Shih, 1997	191	Chinese Happiness Inventory	Poor mental health	-.36
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Satisfaction with health	.43
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Physical symptoms	-.29
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Depressed affect	-.49
Mroczek & Spiro, 2005 <sub>a</sub> (1978-1980 sample)	1,254	Life Satisfaction Inventory	Global health	.23
Mroczek & Spiro, 2005 <sub>a</sub> (1981-1983 sample)	1,267	Life Satisfaction Inventory	Global health	.31
Mroczek & Spiro, 2005 <sub>a</sub> (1984-1986 sample)	1,283	Life Satisfaction Inventory	Global health	.31
Mroczek & Spiro, 2005 <sub>a</sub> (1987-1989 sample)	1,641	Life Satisfaction Inventory	Global health	.24
Mroczek & Spiro, 2005 <sub>a</sub> (1990-1992 sample)	965	Life Satisfaction Inventory	Global health	.26
Mroczek & Spiro, 2005 <sub>a</sub> (1993-1995 sample)	974	Life Satisfaction Inventory	Global health	.29
Mroczek & Spiro, 2005 <sub>a</sub> (1996-1998 sample)	919	Life Satisfaction Inventory	Global health	.29
Mroczek & Spiro, 2005 <sub>a</sub> (1999-2000 sample)	389	Life Satisfaction Inventory	Global health	.34
Phillips, 1967 <sub>a</sub>	593	One-item happiness	Overall mental health	.22
Røysamb et al., 2003 <sub>a</sub>	6,576	SWB Index	Global health	.50
Røysamb et al., 2003 <sub>a</sub>	6,576	SWB Index	Musculoskeletal pain	-.25
Windle, 2000 <sub>a</sub>	1,016	Revised Dimension of Temperament Survey	Delinquent activity	-.22
Positive perceptions of self and others				
Berry & Hansen, 1996 <sub>a</sub> (Study 1)	112	PANAS	Quality of conversation	.27
Cooper et al., 1992 <sub>a</sub> (Study 1 & Study 2)	118	SWLS	Satisfaction with relatives	.22
Cooper et al., 1992 <sub>a</sub> (Study 1 & Study 2)	118	PANAS	Satisfaction with relatives	.12
Cooper et al., 1992 <sub>a</sub> (Study 1 & Study 2)	118	SWLS	Satisfaction with friends	.31
Cooper et al., 1992 <sub>a</sub> (Study 1 & Study 2)	118	PANAS	Satisfaction with friends	.23
Cowan et al., 1998	90	Inventory of Personal Happiness	Hostility toward other women	-.21
Gladow & Ray, 1986 <sub>a</sub>	63	One-item happiness	Support received from friends	.35
Gladow & Ray, 1986 <sub>a</sub>	63	One-item happiness	Support received from relatives	.14
Glenn & Weaver, 1981 <sub>a</sub> (White male sample)	1,872	One-item happiness	Satisfaction with friendships	.22
Glenn & Weaver, 1981 <sub>a</sub> (Black male sample)	167	One-item happiness	Satisfaction with friendships	.23
Glenn & Weaver, 1981 <sub>a</sub> (White female sample)	820	One-item happiness	Satisfaction with friendships	.29
Glenn & Weaver, 1981 <sub>a</sub> (Black female sample)	89	One-item happiness	Satisfaction with friendships	.13
Glenn & Weaver, 1981 <sub>a</sub> (White male sample)	1,872	One-item happiness	Satisfaction with family life	.25
Glenn & Weaver, 1981 <sub>a</sub> (Black male sample)	167	One-item happiness	Satisfaction with family life	.15
Glenn & Weaver, 1981 <sub>a</sub> (White female sample)	820	One-item happiness	Satisfaction with family life	.39
Glenn & Weaver, 1981 <sub>a</sub> (Black female sample)	89	One-item happiness	Satisfaction with family life	.17
Judge & Higgins, 1998 (Study 1)	110	Neutral Objects Satisfaction Questionnaire	Judged favorability of reference letter (hypothetical)	.29
Judge & Higgins, 1998 (Study 2)	95	Neutral Objects Satisfaction Questionnaire	Judged favorability of reference letter (actual)	.17
Lucas et al., 1996 (Study 1)	212	SWLS	Self-esteem	.59
Lucas et al., 1996 (Study 1)	212	SWLS	Optimism	.60

(table continues)

Table 1 (continued)

Study	<i>n</i>	Happiness/PA measure	Correlated construct	Effect size ( <i>r</i> )
Positive perceptions of self and others (continued)				
Lucas et al., 1996 (Study 2)	109	SWLS	Self-esteem	.65
Lucas et al., 1996 (Study 2)	109	SWLS	Optimism	.59
Lucas et al., 1996 (Study 3)	172	SWLS	Self-esteem	.54
Lucas et al., 1996 (Study 3)	172	SWLS	Optimism	.57
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Self-esteem	.62
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Optimism	.60
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Sense of mastery	.55
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Perceived control	.47
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with family relations	.41
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with friends	.50
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with health	.43
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with education	.27
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with recreation	.51
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with housing	.43
Lyubomirsky et al., in press <sup>a</sup>	621	SHS	Satisfaction with transportation	.34
Lyubomirsky & Tucker, 1998 <sup>a</sup> (Study 1)	105	SHS	Evaluations of past life events	.41
Lyubomirsky & Tucker, 1998 <sup>a</sup> (Study 3)	47	SHS	Liking of videotaped target	.29
Lyubomirsky & Tucker, 1998 <sup>a</sup> (Study 3)	38	SHS	Evaluations of real-life target	.36
Mayer et al., 1988 (preliminary study)	206	Mood-State Introspection Scale	Inferences about people	.29
Mayer et al., 1988 (Study 2)	193	Mood-State Introspection Scale	Inferences about people	.29
Mongrain & Zuroff, 1995	152	Four positive adjectives	Self-criticism	-.39
Pfeiffer & Wong, 1989 <sup>a</sup>	123	MUNSH	Cognitive jealousy	-.08
Pfeiffer & Wong, 1989 <sup>a</sup>	123	MUNSH	Emotional jealousy	-.24
Pfeiffer & Wong, 1989 <sup>a</sup>	123	MUNSH	Behavioral jealousy	-.17
Ryff, 1989	321	Life Satisfaction Index	Personal growth	.38
Schimmack et al., 2004 <sup>a</sup> (Study 1)	136	SWLS	Self-rated assertiveness	.21
Schimmack et al., 2004 <sup>a</sup> (Study 2)	124	SWLS	Self-rated assertiveness	.36
Schimmack et al., 2004 <sup>a</sup> (Study 1)	136	SWLS	Self-rated warmth	.27
Tarlow & Haaga, 1996	124	PANAS	Self-esteem	.57
Totterdell, 2000 <sup>a</sup>	18	One-item happiness (12 times over 4 days)	Self-rated performance	.50
Weiss et al., 1999 <sup>a</sup>	24	Fordyce HM Scale	Satisfaction with job	.29
Sociability and activity				
Bahr & Harvey, 1980	44	One-item happiness	Attendance at club meetings	.31
Berry & Hansen, 1996 <sup>a</sup> (Study 1)	112	PANAS	Quality of conversation	.27
Berry & Hansen, 1996 <sup>a</sup> (Study 1)	112	PANAS	Degree of disclosure in conversation	.06
Berry & Hansen, 1996 <sup>a</sup> (Study 1)	112	PANAS	Degree of engagement in conversation	.10
Berry & Hansen, 1996 <sup>a</sup> (Study 1)	112	PANAS	Intimacy of conversation	.09
Berry & Hansen, 1996 <sup>a</sup> (Study 2)	105	PANAS	No. of daily interactions	.34
Brebner et al., 1995	95	Oxford Happiness Inventory	Extraversion	.31
Brebner et al., 1995	95	Personal State Questionnaire, Version 5	Extraversion	.43
Brebner et al., 1995	95	LOT	Extraversion	.21
Burger & Caldwell, 2000 <sup>a</sup>	134	PANAS	Extraversion	.54
Burger & Caldwell, 2000 <sup>a</sup>	134	PANAS	Social activities	.40
Costa & McCrae, 1980 <sup>a</sup>	753	Bradburn's Scales	Extraversion	.16
Costa & McCrae, 1980 <sup>a</sup>	554	Bradburn's Scales	Extraversion	.16
Diener & Fujita, 1995 <sup>a</sup>	186	SWLS	Informant-rated energy	.39
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Extraversion	.49
Diener & Seligman, 2002 <sup>a</sup>	106	SWLS, affect balance, memory recall	Peer ratings of target's relationships	.65
Elliot & Thrash, 2002	176	General Temperament Survey	Performance-approach goals	.15
Gladow & Ray, 1986 <sup>a</sup>	63	One-item happiness	Personal conversations	.35
Graef et al., 1983	107	One-item happiness	Intrinsically motivating experiences (%)	.28
Griffin et al., in press	1,051	PANAS	Extraversion	.32
Harker & Keltner, 2001 <sup>a</sup>	49	FACS Duchenne smile	Self-rated affiliation	.33
Harker & Keltner, 2001 <sup>a</sup>	114	FACS Duchenne smile	Observer-rated affiliation	.69
Headey & Wearing, 1989	649	Life Satisfaction Index	Extraversion	.20
Headey & Wearing, 1989	649	Bradburn's Scales	Extraversion	.18
Hektner, 1997 <sup>a</sup>	281	One-item happy mood	Flow	.27
Kahana et al., 1995	257	Fifteen items from the 22-item screening score	Satisfaction with activities	.38

Table 1 (continued)

Study	n	Happiness/PA measure	Correlated construct	Effect size (r)
Sociability and activity (continued)				
Kashdan & Roberts, 2004 <sub>a</sub>	104	PANAS	Attraction to partner	.50
Kashdan & Roberts, 2004 <sub>a</sub>	104	PANAS	Closeness to partner	.30
Lu & Argyle, 1991	114	Oxford Happiness Inventory	Attitude toward joint activities	.25
Lu & Argyle, 1991	114	Oxford Happiness Inventory	Attitude toward group activities	.22
Lucas et al., 2000	5,842	PANAS	Extraversion	.62
Lucas et al., 2000	5,842	PANAS	Ascendance	.30
Lucas et al., 2000	5,842	PANAS	Affiliation	.27
Lucas, 2001 <sub>a</sub> (daily study)	144	PANAS	Experience of Affiliation/warmth	.48
Lucas, 2001 <sub>a</sub> (daily study)	144	PANAS	Time spent with friends	.22
Lucas, 2001 <sub>a</sub> (daily study)	144	PANAS	Time spent leading	.20
Lucas, 2001 <sub>a</sub> (moment study)	124	Time felt happy and pleasant (%)	Time spent leading	.24
Lucas, 2001 <sub>a</sub> (moment study)	124	Time felt happy and pleasant (%)	Time spent with friends and family	.19
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Extraversion	.36
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Satisfaction with recreation	.51
Matikka & Ojanen, in press	376	Three-item happiness	Social participation	.22
Matikka & Ojanen, in press	376	Three-item happiness	Social inclusion	.21
Mishra, 1992 <sub>a</sub>	720	Index of Life Satisfaction	Engaging in hobbies and special interests	.63
Mishra, 1992 <sub>a</sub>	720	Index of Life Satisfaction	Interaction with members of voluntary organizations	.50
Mishra, 1992 <sub>a</sub>	720	Index of Life Satisfaction	Engaging in occupational activities	.64
Schimmack et al., 2004 <sub>a</sub> (Study 1)	136	SWLS	Extraversion	.33
Schimmack et al., 2004 <sub>a</sub> (Study 1)	136	SWLS	Gregariousness	.26
Schimmack et al., 2004 <sub>a</sub> (Study 1)	136	SWLS	Informant ratings of how active	.24
Schimmack et al., 2004 <sub>a</sub> (Study 2)	124	SWLS	Friendliness	.43
Schimmack et al., 2004 <sub>a</sub> (Study 2)	124	SWLS	Gregariousness	.21
Stones & Kozma, 1986 <sub>a</sub>	408	MUNSH	Activity level	.13 <sub>b</sub>
Watson, 1988 <sub>a</sub>	71	Positive Emotionality Scale	Social activity	.34
Watson et al., 1992 <sub>a</sub> (Study 1)	85	PANAS (weekly, over 13 weeks)	Weekly social activity	.36
Watson et al., 1992 <sub>a</sub> (Study 2)	127	PANAS (daily, over 6–7 weeks)	Weekly social activity	.39
Watson et al., 1992 <sub>a</sub> (Study 1)	79	PANAS, extraversion, positive temperament	Weekly social activity	.35
Watson et al., 1992 <sub>a</sub> (Study 2)	96	PANAS, joviality	Weekly social activity	.31
Watson et al., 1992 <sub>a</sub> (Study 2)	120	PANAS, extraversion, positive temperament	Weekly social activity	.28
Likeability and cooperation				
Barsade et al., 2000	62	MPQ well-being	Task conflict	-.30
Barsade et al., 2000	20	MPQ well-being	Group cooperativeness	.38
Bell, 1978	120	Personal Feelings Scale	Likeability as work partner	.43
Berry & Hansen, 1996 <sub>a</sub> (Study 1)	112	PANAS	Intimacy of conversation	.09
Berry & Hansen, 1996 <sub>a</sub> (Study 1)	112	PANAS	Degree of disclosure in conversation	.06
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged physical attractiveness	.33
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged intelligence/competence	.30
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged social skills	.41
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged public speaking ability	.28
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged self-confidence	.36
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged assertiveness	.25
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged number of close friends	.35
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged likelihood of having a strong romantic relationship	.33
Diener & Fujita, 1995 <sub>a</sub>	186	Delighted-Terrible Scale, Fordyce one-item happiness	Judged likelihood of having family support	.34
Harker & Keltner, 2001 <sub>a</sub>	114	FACS Duchenne smile	Observer-rated affiliation	.69
Harker & Keltner, 2001 <sub>a</sub>	114	FACS Duchenne smile	Observer-rated negative emotionality	-.57
Harker & Keltner, 2001 <sub>a</sub>	114	FACS Duchenne smile	Judged positive emotionality	.71
Harker & Keltner, 2001 <sub>a</sub>	114	FACS Duchenne smile	Judged competence	.21

(table continues)

Table 1 (continued)

Study	n	Happiness/PA measure	Correlated construct	Effect size (r)
Likeability and cooperation (continued)				
Kashdan & Roberts, 2004 <sub>a</sub>	104	PANAS	Partner-rated attraction	.34
Kashdan & Roberts, 2004 <sub>a</sub>	104	PANAS	Partner-rated closeness	.30
King & Napa, 1998 (Study 1)	104	Three -item happiness	Judged moral goodness	.29
King & Napa, 1998 (Study 1)	104	Three-item happiness	Judged likelihood of going to heaven	.25
King & Napa, 1998 (Study 2)	264	Three-item happiness	Judged moral goodness	.26
King & Napa, 1998 (Study 2)	264	Three-item happiness	Judged likelihood of going to heaven	.26
Mathes & Kahn, 1975 (female sample)	101	Happiness	Judged physical attractiveness	.37
Mathes & Kahn, 1975 (male sample)	110	Happiness	Judged physical attractiveness	.09
Perry et al., 1986 (eighth grade sample)	32	Dichotomous "Who is happier?"	Helpfulness	.44
Rimland, 1982	1,991	Dichotomous "Happy or not?"	Selfishness	-.60
Scheufele & Shah, 2000	3,462	Four-item Index of Life Satisfaction	Personality strength	.21
Schimmack et al., 2004 <sub>a</sub> (Study 1)	136	SWLS	Informant-rated warmth	.28
Schimmack et al., 2004 <sub>a</sub> (Study 2)	124	SWLS	Informant-rated friendliness	.33
Schimmack et al., 2004 <sub>a</sub> (Study 1)	136	SWLS	Informant-rated assertiveness	.20
Schimmack et al., 2004 <sub>a</sub> (Study 2)	124	SWLS	Informant-rated assertiveness	.25
Staw & Barsade, 1993 <sub>a</sub>	111	Three-measure composite	Judged managerial potential	.20
Taylor et al., 2003	55	Ten-measure composite	Judged positive personal qualities	.28
Van Katwyk et al., 2000 <sub>a</sub> (Study 3)	111	PANAS	Interpersonal conflict	-.12
Prosocial behavior				
Feingold, 1983 (male sample)	87	One-item happiness	Unselfishness	.27
Feingold, 1983 (female sample)	88	One-item happiness	Unselfishness	.09
George, 1991	221	Job Affect Scale	Extrarole prosocial behavior	.24
George, 1991	221	Job Affect Scale	Customer service	.26
Krueger et al., 2001 <sub>a</sub>	397	MPQ positive emotionality	Self-reported altruistic acts	.44
Lucas, 2001 <sub>a</sub> (daily study)	144	PANAS	Time spent helping	.36
Lucas, 2001 <sub>a</sub> (moment study)	124	Time felt happy and pleasant (%)	Time spent helping	.27
Magen & Aharoni, 1991 <sub>a</sub>	260	Four-item intensity of positive experience	Transpersonal commitment	.21
Magen & Aharoni, 1991 <sub>a</sub>	260	Four-item intensity of positive experience	Involvement in community service	.36
Rigby & Slee, 1993	869	Life-as-a-Whole Index	Tendency to act in a prosocial or cooperative manner	.36
Strayer, 1980 <sub>a</sub>	14	Observational count of happy affect	Observational count of empathetic responses	.59
Williams & Shiaw, 1999	139	Watson 10-item positive affectivity scale	Anticipated organizational citizenship behavior	.42
Physical well-being and coping				
Achat et al., 2000 <sub>a</sub>	659	LOT	General health	.23 <sub>b</sub>
Achat et al., 2000 <sub>a</sub>	659	LOT	Pain	-.09 <sub>b</sub>
Audrain et al., 2001	227	PANAS	Physical activity	.19
Bardwell et al., 1999 (healthy sample)	40	One-item vigor	Sleep quantity	.32
Bardwell et al., 1999 (healthy sample)	40	One-item vigor	Sleep quality	.36
Benyaminini et al., 2000 <sub>a</sub>	851	12-item positive affect	Self-reported health	.49
Carver et al., 1993 <sub>a</sub> (presurgery assessment)	59	LOT	Active coping	.33
Carver et al., 1993 <sub>a</sub> (presurgery assessment)	59	LOT	Coping by positive reframing	.41
Carver et al., 1993 <sub>a</sub> (presurgery assessment)	59	LOT	Coping by humor	.40
Carver et al., 1993 <sub>a</sub> (presurgery assessment)	59	LOT	Coping by denial	-.39
C. C. Chen et al., 1996	121	General Health Questionnaire	Engagement coping	.31
Dillon & Totten, 1989	16	Coping Humor Scale	Presence of upper respiratory infection	-.58
Goldman et al., 1996	134	Repair Subscale of the Trait Meta-Mood Scale	Reported illnesses	-.21
Irving et al., 1998	115	Hope Scale	Hope-related coping responses	.35
Kehn, 1995 <sub>a</sub>	98	Life Satisfaction Index	Global health	.43
Keltner & Bonanno, 1997	39	FACS Duchenne laughter	Perceived adjustment	.31
Lox et al., 1999	121	Affective Reactions Measure	Amount of physical exercise	.19
Lutgendorf et al., 1999 (movers sample)	26	Sense of Coherence Scale	NK cell activity	.49
Lyons & Chamberlain, 1994	158	Uplifts Scale	Upper respiratory infection symptoms	-.03
Lyons & Chamberlain, 1994	158	LOT	Upper respiratory infection symptoms	-.23
Lyubomirsky et al., in press <sub>a</sub>	621	SHS	Satisfaction with health	.43
Lyubomirsky & Tucker, 1998 <sub>a</sub> (Study 1)	105	SHS	Perception of life events	.41

Table 1 (continued)

Study	<i>n</i>	Happiness/PA measure	Correlated construct	Effect size ( <i>r</i> )
<i>Physical well-being and coping (continued)</i>				
McCrae & Costa, 1986 (Study 1)	254	Bradburn's Scales	Coping effectiveness	.27
McCrae & Costa, 1986 (Study 1)	254	Bradburn's Scales	Mature coping	.26
Mishra, 1992 <sup>a</sup>	720	Index of Life Satisfaction	Overall activity level	.61
Pettit et al., 2001 <sup>a</sup>	140	PANAS	Presence and severity of medical conditions	-.26
Pettit et al., 2001 <sup>a</sup>	140	PANAS	Cigarette use	-.24
Pettit et al., 2001 <sup>a</sup>	140	PANAS	Alcohol intake	-.22
Riddick, 1985 (male sample)	806	Life Satisfaction Index	Leisure activities	.37
Riddick, 1985 (female sample)	753	Life Satisfaction Index	Leisure activities	.44
Røysamb et al., 2003 <sup>a</sup>	6,576	SWB Index	Global health	.50
Røysamb et al., 2003 <sup>a</sup>	6,576	SWB Index	Musculoskeletal pain	-.25
Stone et al., 1987	30	Nowlis Mood Adjective Checklist	Secretory IgA antibody activity	.44
Stone et al., 1994	96	PANAS	Antibody activity	.05
Stones & Kozma, 1986 <sup>a</sup>	408	MUNSH	Global health	.19 <sup>b</sup>
Sullivan et al., 2001	105	PANAS	Self-reported physical health	.23
Valdimarsdottir & Bovbjerg, 1997 (with daily NA)	26	Profile of Mood States	NK cell activity	0.64
Valdimarsdottir & Bovbjerg, 1997 (no daily NA)	22	Profile of Mood States	NK cell activity	.05
Vitaliano et al., 1998 <sup>a</sup>	42	Uplifts-Hassles	NK cell activity	.26
Watson, 1988 <sup>a</sup>	80	10-item PA Scale (daily, over 6–8 weeks)	Daily physical complaints	-.18
Watson, 1988 <sup>a</sup>	80	10-item PA Scale (daily, over 6–8 weeks)	Daily physical exercise	.12
Watson, 1988 <sup>a</sup>	80	Positive Emotionality Scale (daily)	Physical exercise	.12
Watson, 2000	354	Positive temperament	Injury visits to health center	.12
Watson, 2000	354	Positive temperament	Illness visits to health center	.15
Watson et al., 1992 <sup>a</sup> (Study 1)	85	PANAS (weekly, over 13 weeks)	Weekly social activity	.36
Watson et al., 1992 <sup>a</sup> (Study 2)	127	PANAS (daily, over 6–7 weeks)	Weekly social activity	.39
Weingert & Rosen, 1995	71	Positive mood checklist	Somatic symptoms	-.10
Zinser et al., 1992	22	Mood Adjective Check List	Urges to smoke	-.38
<i>Creativity and problem solving</i>				
Kashdan et al., 2004 (Study 2)	214	PANAS activated	Exploration strivings	.44
Kashdan et al., 2004 (Study 2)	214	PANAS activated	Absorption in activities	.33
Richards & Kinney, 1990	48	Diagnosis of manic periods	Creative episodes	.41
Schulzberg, 1990	334	Hypomanic traits	Creativity	.25
Schwartz et al., 2002 (Sample 1)	82	SHS	Maximizing tendencies	-.21
Schwartz et al., 2002 (Sample 2)	72	SHS	Maximizing tendencies	-.34
Schwartz et al., 2002 (Sample 3)	100	SHS	Maximizing tendencies	-.17
Schwartz et al., 2002 (Sample 4)	401	SHS	Maximizing tendencies	-.10
Schwartz et al., 2002 (Sample 5)	752	SHS	Maximizing tendencies	-.28
Schwartz et al., 2002 (Sample 6)	220	SHS	Maximizing tendencies	-.17
Shapiro & Weisberg, 1999	52	General Behavior Inventory (hypomanic plus biphasic)	Trait creativity	.33
Staw & Barsade, 1993 <sup>a</sup>	83	Three-measure composite of positive affectivity	Judged managerial performance	.20
Staw et al., 1994 <sup>a</sup>	272	Experience and expression of positive emotion on the job	Judged creativity	.30

Note. PA = positive; PANAS = Positive and Negative Affect Schedule; MPQ = Multidimensional Personality Questionnaire; SWLS = Satisfaction With Life Scale; HM = Happiness Measure; MUNSH = Memorial University of Newfoundland Scale of Happiness; SHS = Subjective Happiness Scale; LOT = Life Orientation Test; MAACL = Multiple Adjective Affect Checklist; SWB = Subjective Well-Being; FACS = Facial Action Coding System; NEO = Neuroticism/Extraversion/Openness Scale; ER = emergency room.

Subscript a indicates that the study appears in more than one section or table. Subscript b indicates that the effect size was calculated controlling for one or more other variables.

Table 2  
Study Information and Effect Sizes for Seven Categories of Longitudinal Research

Study	n	Happiness/PA measure	Correlated construct	Time period	Effect size (r)
Work life					
Burger & Caldwell, 2000 <sup>a</sup>	99	PANAS	Proportion of second interviews	3 months	.35
Cropanzano & Wright, 1999 <sup>a</sup>	60	Index of Psychological Well-Being	Supervisory evaluations	1 year	.36
Cropanzano & Wright, 1999 <sup>a</sup>	60	Index of Psychological Well-Being	Supervisory evaluations	4 years	.27
Cropanzano & Wright, 1999 <sup>a</sup>	60	Index of Psychological Well-Being	Supervisory evaluations	4.5 years	.17
Cropanzano & Wright, 1999 <sup>a</sup>	60	Index of Psychological Well-Being	Supervisory evaluations	5 years	.18
Diener et al., 2002	7,882	On-item cheerfulness	Income	19 years	.03 <sub>b</sub>
Graham et al., in press <sub>a</sub>	4,455	One-item residual happiness	Income	5 years	.04 <sub>b</sub>
Graham et al., in press <sub>a</sub>	4,489	One-item residual happiness	Unemployment	5 years	-.02 <sub>b</sub>
Marks & Fleming, 1999	1,322	Nine-item SWB index	Income	1–15 years	.03
Pelled & Xin, 1999	99	PANAS	Absenteeism	5 months	-.36
Roberts et al., 2003	859	MPQ communal positive emotionality	Financial security	8 years	.13
Roberts et al., 2003	859	MPQ agency positive emotionality	Financial security	8 years	.06
Roberts et al., 2003	859	MPQ communal positive emotionality	Occupational attainment	8 years	.19
Roberts et al., 2003	859	MPQ agency positive emotionality	Occupational attainment	8 years	.16
Roberts et al., 2003	859	MPQ communal positive emotionality	Work autonomy	8 years	.06
Roberts et al., 2003	859	MPQ agency positive emotionality	Work autonomy	8 years	.13
Seligman & Schulman, 1986 <sub>a</sub> (Study 2)	68	Attributional Style Questionnaire	Quarterly insurance commissions	6 months to 1 year	.27
Staw et al., 1994 <sub>a</sub>	129	Experience and expression of positive emotion on the job	Job autonomy, meaning, and variety	1.5 years	.23
Staw et al., 1994 <sub>a</sub>	191	Experience and expression of positive emotion on the job	Gross annual salary	1.5 years	.24
Staw et al., 1994 <sub>a</sub>	191	Experience and expression of positive emotion on the job	Judged creativity	1.5 years	.16
Wright & Staw, 1999 <sub>a</sub> (Study 1)	44	Index of Psychological Well-Being	Supervisory evaluations	3.5 years	.47
Wright & Staw, 1999 <sub>a</sub> (Study 2)	63	Index of Psychological Well-Being	Supervisory evaluations	1 year	.46
Social relationships					
Harker & Keltner, 2001 <sub>a</sub>	71	FACS Duchenne smile	Marital satisfaction	31 years	.20
Harker & Keltner, 2001 <sub>a</sub>	111	FACS Duchenne smile	Marital status	6 years	.19
Harker & Keltner, 2001 <sub>a</sub>	112	FACS Duchenne smile	Single status	22 years	-.20
Headey et al., 1991 <sub>a</sub>	649	Life-as-a-Whole Index	Satisfaction with marriage	6 years	.30
Lucas et al., 2003	1,761	One-item happiness	Marital status	4+ years	.20
Marks & Fleming, 1999 <sub>a</sub>	1,322	Nine-item SWB index	Marital status	1–15 years	.09
Neyer & Asendorpf, 2001	489	General Self-Esteem	Closeness with all relationships	4 years	.19 <sub>b</sub>
Ruvolo, 1998 <sub>a</sub> (wives sample)	317	One-item happiness	Marital well-being	1 year	.30
Ruvolo, 1998 <sub>a</sub> (wives sample)	317	One-item happiness	Spouse's marital well-being	1 year	.15
Ruvolo, 1998 <sub>a</sub> (husbands sample)	317	One-item happiness	Marital well-being	1 year	.28
Ruvolo, 1998 <sub>a</sub> (husbands sample)	317	One-item happiness	Spouse's marital well-being	1 year	.40
Spanier & Furstenberg, 1982	180	Cantril's Ladder Scale	Remarriage after divorce	2.5 years	.16
Staw et al., 1994 <sub>a</sub>	251	Experience and expression of positive emotion on the job	Emotional and tangible support from supervisors	1.5 years	.25 <sub>b</sub>
Health					
Danner et al., 2001	180	No. of positive emotional words	Mortality rate	Lifetime	-.31
Deeg & van Zonneveld, 1989	2,645	One-item life satisfaction	Probability of dying relative to peers	26–28 years	-.11
Devins et al., 1990	97	Life Happiness Rating Scale	Survival	4 years	.15
Fitzgerald et al., 2000	42	LOT	CHD risk reduction	9 months	.30 <sub>b</sub>
Friedman et al., 1993	1,178	Cheerfulness-Humor	Age at death	lifetime	-.09
Gil et al., 2004 <sub>a</sub>	3,565	Daily Mood Scale	Pain	2 days	-.06 <sub>b</sub>
Gil et al., 2004 <sub>a</sub>	3,546	Daily Mood Scale	Hospital visits	1 day	-.04 <sub>b</sub>
Gil et al., 2004 <sub>a</sub>	3,546	Daily Mood Scale	Emergency room visits	1 day	-.06 <sub>b</sub>
Graham et al., in press <sub>a</sub>	4,455	Two-item residual happiness	Health problems last 30 days	5 years	-.06 <sub>b</sub>

Table 2 (continued)

Study	n	Happiness/PA measure	Correlated construct	Time period	Effect size (r)
Health (continued)					
Kirkcaldy & Furnham, 2000	Four databases	SWB	Automobile fatalities	8 years	-.56
Koivumaa-Honkanen et al., 2001	29,137	Four-item life satisfaction	Suicides	Up to 20 years	-.03
Koivumaa-Honkanen et al., 2002 (male sample)	14,348	Four-item life satisfaction	Fatal intentional and unintentional injuries	Up to 20 years	-.06
Koivumaa-Honkanen et al., 2002 (female sample)	14,789	Four-item life satisfaction	Fatal intentional and unintentional injuries	Up to 20 years	-.02
Koivumaa-Honkanen et al., 2004 (male sample)	11,037	Four-item life satisfaction	Work disability pension for psychiatric and nonpsychiatric causes	Up to 11 years	-.11
Koivumaa-Honkanen et al., 2004 (female sample)	11,099	Four-item life satisfaction	Work disability pension for psychiatric and nonpsychiatric causes	Up to 11 years	-.12
Krause et al., 1997	330	Eight-item life satisfaction	Survival fatal and nonfatal coronary heart disease	11 years	.18
Kubzansky et al., 2001	1,306	Revised Optimism-Pessimism Scale		12 years	-.14
Kubzansky et al., 2001	1,306	Revised Optimism-Pessimism Scale	Fatal coronary heart disease	12 years	-.07
Kubzansky et al., 2001	1,306	Revised Optimism-Pessimism Scale	Nonfatal angina and heart attacks	12 years	-.12
Levy et al., 1988	36	Affect Balance Scale-Joy	Survival	7 years	.36
Levy et al., 2002 (Study 2)	660	Attitudes Toward Own Aging Subscale	Days survival	22.6 years	.25
Maier & Smith, 1999	513	PANAS	Mortality rate	3-6 years	-.06
Ostir et al., 2000	2,276	CESD Positive Affect Scale	Survival	2 years	.08
Ostir et al., 2001 (male sample)	772	CESD Positive Affect Scale	Stroke incidence	6 years	-.13 <sub>b</sub>
Ostir et al., 2001 (female sample)	1,706	CESD Positive Affect Scale	Stroke incidence	6 years	-.05 <sub>b</sub>
Palmore, 1969	265	One-item interviewer-rated happiness	Mortality rate	15 years	-.26
Peterson et al., 1998	1,097	Optimistic (global) attributional style	Mortality rate	Lifetime	-.11
Peterson et al., 1998 (male sample)	622	Optimistic (global) attributional style	Mental health problems	10 years	-.14
Peterson et al., 1998 (male sample)	622	Optimistic (global) attributional style	Poor adjustment	10 years	-.11
Peterson et al., 1998 (male sample)	622	Optimistic (global) attributional style	High levels of drinking	10 years	-.07
Pitkala et al., 2004	491	S	Survival	10 years	.13
Reynolds & Nelson, 1981	154	Life satisfaction scale	Survival	1 year	.13
Scheier et al., 1989 <sub>a</sub>	46	LOT	No. of days to begin walking	1 week	-.36
Scheier et al., 1989 <sub>a</sub>	46	LOT	Physical recovery	1 week	.35
Scheier et al., 1989 <sub>a</sub>	45	LOT	Postsurgical quality of life	6 months	.67
Scheier et al., 1989 <sub>a</sub>	45	LOT	Resume vigorous exercise	6 months	.33
Scheier et al., 1989 <sub>a</sub>	44	LOT	Return to normal activities	6 months	.38
Smith et al., 1997	86	One-item vigor	Hockey injury	6 months	-.32
Windle, 2000 <sub>a</sub>	1,016	Revised Dimension of Temperament Survey	Delinquent activity	6 months	-.25
Windle, 2000 <sub>a</sub>	1,016	Revised Dimension of Temperament Survey	Delinquent activity	12 months	-.15
Windle, 2000 <sub>a</sub>	1,016	Revised Dimension of Temperament Survey	Delinquent activity	18 months	-.12
Zuckerman et al., 1984 (healthy sample)	182	One-item interviewer-rated happiness	Mortality rate	2 years	-.07
Zuckerman et al., 1984 (unhealthy sample)	168	One-item interviewer-rated happiness	Mortality rate	2 years	-.14
Positive perceptions of self and others					
Harker & Keltner, 2000 <sub>a</sub>	104	FACS Duchenne smile	Self-rated competence	22 years	.20
Harker & Keltner, 2001 <sub>a</sub>	100	FACS Duchenne smile	Self-rated competence	31 years	.29

(table continues)

Table 2 (continued)

Study	n	Happiness/PA measure	Correlated construct	Time period	Effect size (r)
Sociability and activity					
Costa et al., 1981	396	Chicago Attitude Inventory	Extraversion	2–10 years	.20
Costa et al., 1981	114	Chicago Attitude Inventory	Extraversion	10–17 years	.24
Costa & McCrae, 1980 <sub>a</sub>	234	Bradburn's Scales	Extraversion	10 years	.23
Harker & Keltner, 2001 <sub>a</sub>	104	FACS Duchenne smile	Self-rated affiliation	22 years	.23
Harker & Keltner, 2001 <sub>a</sub>	100	FACS Duchenne smile	Self-rated affiliation	31 years	.16
Stones & Kozma, 1986 <sub>a</sub>	408	MUNSH	Activity level	1.5 years	.29 <sub>b</sub>
Creativity and prosocial behavior					
Staw et al., 1994 <sub>a</sub>	191	Experience and expression of positive emotion on the job	Judged creativity	1.5 years	.31 <sub>b</sub>
Thoits & Hewitt, 2001 <sub>a</sub>	2,681	One-item happiness	Time spent engaged in volunteer work	3 years	.04 <sub>b</sub>
Physical well-being and coping					
Benyamin et al., 2000 <sub>a</sub>	791	12-item positive affect	Global health	1 year	.13 <sub>b</sub>
Benyamin et al., 2000 <sub>a</sub>	678	12-item positive affect	Global health	3 years	.11 <sub>b</sub>
Benyamin et al., 2000 <sub>a</sub>	525	12-item positive affect	Global health	5 years	.17 <sub>b</sub>
Carver et al., 1993 <sub>a</sub>	59	LOT	Active coping	3 months	.16
Carver et al., 1993 <sub>a</sub>	59	LOT	Coping by positive reframing	3 months	.26
Carver et al., 1993 <sub>a</sub>	59	LOT	Coping by humor	3 months	.38
Carver et al., 1993 <sub>a</sub>	59	LOT	Coping by denial	3 months	-.37
Cohen et al., 2003	334	Positive emotional style	Presence of clinical infection	1 month	-.14
Epping-Jordan et al., 1999	80	LOT	Symptoms of anxiety/depression	3 months	-.40
Epping-Jordan et al., 1999	80	LOT	Symptoms of anxiety/depression	6 months	-.55
Fredrickson & Joiner, 2002	138	PANAS	Broad-minded coping	5 weeks	.19
Graham et al., in press <sub>a</sub>	1,683	One-item residual happiness	Alcohol intake	5 years	-.04 <sub>b</sub>
Graham et al., in press <sub>a</sub>	1,252	One-item residual happiness	Smoking	5 years	-.06 <sub>b</sub>
Pettit et al., 2001 <sub>a</sub>	1,33	PANAS	Presence and severity of medical conditions	5 weeks	-.31
Scheier et al., 1989 <sub>a</sub>	47	LOT	Coping by information seeking	1 week	.43
Scheier et al., 1989 <sub>a</sub>	47	LOT	Coping by suppression	1 week	-.30
Stones & Kozma, 1986 <sub>a</sub>	408	MUNSH	Global health	1.5 years	.28 <sub>b</sub>
Vitaliano et al., 1998 <sub>a</sub>	23	Uplifts-Hassles	NK cell activity	1.5 years	.48

Note. PA = positive affect; PANAS = Positive and Negative Affect Schedule; MPQ = Multidimensional Personality Questionnaire; FACS = Facial Action Coding System; CES-D = Center for Epidemiologic Depression Scale; SWLS = Satisfaction With Life Scale; LOT = Life Orientation Test; MUNSH = Memorial University of Newfoundland Scale of Happiness; HM = Happiness Measure; SWB = Subjective Well-Being; NK = natural killer. Subscript a indicates that the study appears in more than one panel or table. Subscript b indicates that the effect size was calculated controlling for one or more other variables.

independence among them. To this end, several guidelines were followed.

First, when more than one effect size was generated from the same sample, and these effect sizes involved moderately to highly correlated constructs (e.g., judgments of friendliness, gregariousness, and assertiveness), they were not treated independently. As a result, the unweighted average of each set of correlated effect sizes was used in our analyses. This procedure was used for effect sizes generated from the same sample and reported within a particular panel of a table (e.g., those involving work life in Table 1).

Second, as mentioned previously, we recognized that sometimes the same sample was used to generate effect sizes in more than one panel of a table (e.g., sociability/activity and health) or even across tables (e.g., supervisory evaluations assessed at a single point in time [in Table 1] as well as two points in time [in Table 2]). In such instances, we selected only one specific effect size for our analyses. If the *r*s came from the same table, the effect size tapping the best fitting construct was chosen. If the *r*s spanned Tables 1 and 2,

the effect size reflecting a longitudinal correlation was selected, as longitudinal data speak relatively more strongly to causation.

Third, even when generated from the same sample or dataset, effect sizes were considered independent if they involved variables that are not highly correlated with one another (e.g., income and alcohol consumption; see Meng, Rosenthal, & Rubin, 1992).

### Defining Our Terms

#### What Is the Hallmark of Happiness?

Our focus in this article is on happy individuals—that is, those who experience frequent positive emotions, such as joy, interest, and pride, and infrequent (though not absent) negative emotions, such as sadness, anxiety, and anger. Although many definitions of happiness have been used in the literature, ranging from life satisfaction and an appreciation of life to momentary feelings of pleasure, we define happiness here as a shorthand way of referring

Table 3  
*Study Information and Effect Sizes for Six Categories of Experimental Research*

Study	n	Affect induction	Comparison groups	Dependent variable	Effect size (r)
Positive perceptions of self and others					
Baron, 1987	71	False feedback	Positive vs. negative and control	Likeability of accomplice	.44
Baron, 1987	71	False feedback	Positive vs. negative and control	Judgment of whether employee matches job requirements	.43
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	Self-efficacy	.16
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	Self-set goals	.22
Baron, 1993	92	Recall event(s)	Positive vs. negative	Overall evaluation of accomplice for job	.17
Baron et al., 1992 (Study 1)	91	Lighting	High illuminance vs. low illuminance	Overall rating of employee	.53
Baron et al., 1992 (Study 1)	91	Lighting	High illuminance vs. low illuminance	Hiring decision	.34
Baron et al., 1992 (Study 3) <sub>a</sub>	80	Gift	Positive vs. control	Judgment of whether hypothetical employee deserves merit raise	.23
Baron et al., 1992 (Study 3) <sub>a</sub>	80	Gift	Positive vs. control	Judgment of whether hypothetical employee deserves promotion	.21
Barsade, 2002 <sub>a</sub>	93	Confederate role playing	Positive vs. negative	Perceived task performance	.21
Brown, 1984	61	Velten	Positive vs. negative	Certainty of future success	.73
Brown, 1984	61	Velten	Positive vs. negative	Attribution of successes to stable causes	.26
Clark & Waddell, 1983	45	False feedback	Positive vs. control	Recall of positive aspects of past experiences	.36
Griffitt, 1970	40	Temperature	Extreme heat vs. normal temperature	Interpersonal attraction	.33
Hom & Arbuckle, 1988	31	Recall event(s)	Happy vs. sad	Goal setting	.48
Samson & Rachman, 1989	84	Music and thought	Happy vs. sad	Self-efficacy	.28
Sarason et al., 1986 (Study 2)	60	Self-description task	Positive vs. negative self-feelings	Positive self-references	.39
Schuetzler & Kiviniemi, in press <sub>a</sub>	50	Velten	Positive vs. negative	Self-efficacy regarding health	.43
Wright & Mischel, 1982	72	Recall event(s)	Positive vs. negative	Satisfaction with performance	.64
Wright & Mischel, 1982	72	Recall event(s)	Positive vs. negative	Recall of past successes	.75
Sociability and activity					
Cunningham, 1988a (Study 1) <sub>a</sub>	102	Velten	Elated vs. neutral and depressed	Interest in being with friends	.20
Cunningham, 1988a (Study 1) <sub>a</sub>	102	Velten	Elated vs. neutral and depressed	Interest in social activities	.31
Cunningham, 1988a (Study 1) <sub>a</sub>	102	Velten	Elated vs. neutral and depressed	Interest in leisure activities	.33
Cunningham, 1988b	77	False feedback and videotape	Positive vs. negative	High self-disclosure	.44
Cunningham, 1988b	77	False feedback and videotape	Positive vs. negative	Total communication	.53
Hirt et al., 1996	194	Velten	Positive vs. negative and control	Interest in category-sorting task	.56
McMillen et al., 1977 (Study 1)	27	False feedback	Positive vs. negative	Attentive	.71
Murray et al., 1990 (Study 3)	85	Velten and film clip(s)	Positive vs. neutral	Intrinsic interest	.74
Waugh & Fredrickson, 2003	94	Film clip(s)	Amused vs. neutral	Perceived relationship closeness	.27
Negotiation and conflict resolution					
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	More monetary concessions	.23
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	Resolving interpersonal conflict through avoidance	-.23
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	Resolving interpersonal conflict through competition	-.23
Baron et al., 1990 (Study 2) <sub>a</sub>	16	Humor	Humor vs. control	Preference to resolve conflict through avoidance	-.50
Baron et al., 1990 (Study 2) <sub>a</sub>	16	Flattery	Flattery vs. control	Preference to resolve conflict through avoidance	-.50
Baron et al., 1990 (Study 2) <sub>a</sub>	16	Flattery	Flattery vs. control	Preference to resolve conflict through collaboration	.50
Baron et al., 1992 (Study 2)*	72	Lighting	Warm vs. cool lighting	Resolving interpersonal conflict through collaboration	.29

(table continues)

Table 3 (continued)

Study	n	Affect induction	Comparison groups	Dependent variable	Effect size (r)
Negotiation and conflict resolution (continued)					
Baron et al., 1992 (Study 2) <sup>a</sup>	72	Lighting	Warm vs. cool lighting	Resolving interpersonal conflict through avoidance	-.30
Barsade, 2002 <sup>a</sup>	26	Confederate role playing	Positive vs. negative	Judged group cooperativeness	.44
Barsade, 2002 <sup>a</sup>	26	Confederate role playing	Positive vs. negative	Judged group conflict	-.42
Carnevale & Isen, 1986 <sup>a</sup>	80	Cartoon(s) and gift	Positive vs. control	Persist at negotiation	.41
Forgas, 1998 (Study 1)	72	False feedback	Positive vs. control	Planned use of cooperation as bargaining strategy	.32
Forgas, 1998 (Study 1)	72	False feedback	Positive vs. control	Planned use of competition as bargaining strategy	-.32
Forgas, 1998 (Study 2)	132	False feedback	Positive vs. negative	Planned use of cooperation as bargaining strategy	.21
Forgas, 1998 (Study 2)	132	False feedback	Positive vs. negative	Planned use of competition as bargaining strategy	-.21
Forgas, 1998 (Study 3)	96	False feedback	Positive vs. negative	Planned use of cooperation as bargaining strategy	.30
Forgas, 1998 (Study 3)	96	False feedback	Positive vs. negative	Planned use of competition as bargaining strategy	-.24
Prosocial behavior					
Aderman, 1972	120	Velten	Elated vs. depressed	Volunteering	.45
Baron & Bronfen, 1994 (Study 2)	72	Fragrance	Positive vs. control	Time spent helping	.28
Baron et al., 1992 (Study 3) <sup>a</sup>	80	Lighting and gift	Positive/high illuminance vs. control/low illuminance	Time willing to help	.25
Berkowitz, 1987 (Study 1)	108	Velten	Positive vs. negative	Helping	.34
Berkowitz, 1987 (Study 2)	60	Velten	Positive vs. negative	Helping	.68
Carnevale & Isen, 1986 <sup>a</sup>	80	Cartoon(s) and gift	Positive vs. control	Helping	.62
Cunningham, 1988a (Study 1) <sup>a</sup>	102	Velten	Elated vs. neutral and depressed	Interest in prosocial activities	.27
Cunningham et al., 1980 (Study 1)	90	Find dime	Positive vs. neutral	Helping	.28
Cunningham et al., 1980 (Study 2)	160	Find dime	Positive vs. neutral	Donating to charity	.21
Cunningham et al., 1990 (Study 1)	80	Velten	Positive vs. neutral	Helping	.33
Cunningham et al., 1990 (Study 2)	78	Velten	Positive vs. neutral	Helping	.34
Isen, 1970 (Study 1)	14	False feedback	Positive vs. negative	Amount of donation	.58
Isen, 1970 (Study 2)	12	False feedback	Positive vs. control	Helping	.57
Isen, 1970 (Study 2)	10	False feedback	Positive vs. control	Attateness	.58
Isen, 1970 (Study 3)	20	False feedback	Positive vs. control	Helping	.58
Isen, 1970 (Study 3)	20	False feedback	Positive vs. negative	Initiation of conversation	.61
Isen & Levin, 1972 (Study 1)	52	Gift	Positive/help vs. control/distraction	Willingness to help	.36
O'Malley & Andrews, 1983	90	Recall event(s)	Happy vs. neutral	Donating blood	.26
Rosenhan et al., 1974	36	Recall event(s)	Positive vs. control	Contributing to needy children	.52
Rosenhan et al., 1981	20	Stories	Positive vs. neutral	Helping experimenter	.59
Physical well-being and coping					
Alden et al., 2001	38	Mental imagery	Positive vs. negative	Pain ratings	.51
Cogan et al., 1987 (Study 1)	40	Audiotape	Positive vs. control	Pain threshold	.45
Dillon et al., 1985	10	Humorous videotape	Happy vs. control	Immune function	.38
Fredrickson & Levenson, 1998 (Study 2)	72	Video clip(s)	Smiling vs. not smiling	Duration of cardiovascular reactivity	-.26
Fredrickson et al., 2000 (Study 1, Sample 1)	95	Video clip(s)	Content vs. sad	Duration of cardiovascular reactivity	-.27
Fredrickson et al., 2000 (Study 1, Sample 2)	75	Video clip(s)	Content vs. neutral	Duration of cardiovascular reactivity	-.28
Futterman et al., 1994	25	Reflect on scenario(s)	Positive and negative vs. control	Immune function	.76
Lefcourt et al., 1990 (Study 1)	45	Humorous audio clip(s)	Pre- vs. postaudio clip	Immune function	.47
Lefcourt et al., 1990 (Study 2)	34	Humorous video clip(s)	Pre- vs. postvideo clip	Immune function	.46
Lefcourt et al., 1990 (Study 3)	41	Humorous Audio clip(s)	Pre- vs. postaudio clip	Immune function	.50
McClelland & Cherrif, 1997 (Study 1)	57	Video clip(s)	Positive vs. negative	Immune function	.33
McClelland & Cherrif, 1997 (Study 3)	85	Video clip(s)	Positive vs. control	Immune function	.05
Schuettler & Kiviniemi, in press <sup>a</sup>	50	Velten	Positive vs. negative	Self-efficacy regarding health	.43
Schuettler & Kiviniemi, in press <sup>a</sup>	50	Velten	Positive vs. negative	Health perceptions	.53

Table 3 (continued)

Study	n	Affect induction	Comparison groups	Dependent variable	Effect size (r)
Physical well-being and coping (continued)					
Schuetter & Kiviniemi, in press <sub>a</sub>	50	Velten	Positive vs. negative	Treatment-related behavioral intentions	.31
Smith et al., 2004	82	Recall event(s)	Recall of close vs. casual relationship	Blood pressure reactivity to stressful task	-.23
Creativity and problem solving					
Adaman & Blaney, 1995	71	Music	Sad vs. neutral	Originality	-.31
Ambady & Gray, 2002 (Study 1)	35	Video clip(s)	Happy and control vs. sad	Judgment accuracy	.83
Ambady & Gray, 2002 (Study 2)	47	Video clip(s)	Happy and control vs. sad	Judgment accuracy	.63
Baron, 1990 <sub>a</sub>	80	Fragrance	Positive vs. control	Use of efficient strategy on coding task	.22
Bless et al., 1996 (Study 1)	82	Write about event(s)	Happy vs. sad	Reliance on preexisting general knowledge structures	.26
Bless et al., 1996 (Study 2)	61	Video clip(s)	Happy vs. sad	Reliance on preexisting general knowledge structures	.31
Bless et al., 1996 (Study 3)	80	Video clip(s)	Happy vs. sad	Reliance on preexisting general knowledge structures	.31
Bodenhausen et al., 1994 (Study 4)	131	Recall event(s)	Happy/accountable/no stereotype activated vs. neutral/not accountable/stereotype activated	Avoiding stereotypic judgments	.21
Bodenhausen et al., 2000 (Study 1)	70	Recall event(s)	Neutral vs. sad	Anchoring bias	-.24
Bodenhausen et al., 2000 (Study 2)	51	Recall event(s)	Neutral vs. sad	Anchoring bias	-.27
Dovidio et al., 1995	43	Candy	Positive vs. neutral	Making more inclusive group representations	.39
Elsbach & Barr, 1999	120	Candy vs. difficult anagram problems	Positive vs. negative	Careful execution of steps in highly structured task	-.33
Erez & Isen, 2002 (Study 1)	97	Candy	Positive vs. neutral	Performance on anagram task	.21
Erez & Isen, 2002 (Study 1)	97	Candy	Positive vs. neutral	Motivation	.30
Erez & Isen, 2002 (Study 1)	97	Candy	Positive vs. neutral	Time spent on anagram task	.33
Estrada et al., 1994	44	Candy	Positive vs. control	Creativity	.33
Estrada et al., 1997	29	Candy	Positive vs. control	Time before diagnosis considered	-.48
Estrada et al., 1997	29	Candy	Positive vs. control	Anchoring bias	-.40
Forgas, 1989	72	False feedback	Positive vs. negative	Speed and efficiency in reaching decision	.32
Forgas, 1989	72	False feedback	Positive/personal relevance vs. negative/impersonal relevance	Decision-making efficiency	.43
Isen et al., 1985 (Study 1)	29	Word associations to affectively valenced words	Positive vs. neutral	No. of unusual word associations	.48
Isen & Daubman, 1984 (Study 1)	162	Gift	Positive vs. control	Tendency to group items as belonging together	.23
Isen & Daubman, 1984 (Study 2)	162	Video clip(s)	Positive vs. control	Tendency to group items as belonging together	.29
Isen & Daubman, 1984 (Study 3)	74	Gift	Positive vs. control	Tendency to group items as belonging together	.40
Isen & Means, 1983	22	False feedback	Positive vs. control	Propensity to return to already-reviewed information	-.51
Isen & Means, 1983	22	False feedback	Positive vs. control	Pieces of information considered during decision making	-.26
Isen & Means, 1983	22	False feedback	Positive vs. control	Time to complete mental task	-.43
Kahn & Isen, 1993 (Study 1)	69	Gift	Positive vs. control	Variety seeking	.31
Kahn & Isen, 1993 (Study 2)	54	Gift	Positive vs. control	Variety seeking	.31
Kahn & Isen, 1993 (Study 3)	45	Gift	Positive vs. control	Variety seeking	.23
Kavanagh, 1987	85	Recall event(s)	Positive vs. negative	Performance on anagram task	.32
Kavanagh, 1987	85	Recall event(s)	Positive vs. negative	Time spent on anagram task	.34
Mackie & Worth, 1989 (Study 1)	215	False feedback	Positive/limited viewing of Argument vs. remaining conditions	Differentiation of strong vs. weak arguments	-.18
Mackie & Worth, 1989 (Study 2)	260	Video clip(s)	Positive vs. neutral	Differentiation of strong vs. weak arguments	-.15

(table continues)

Table 3 (continued)

Study	n	Affect induction	Comparison groups	Dependent variable	Effect size (r)
Creativity and problem solving (continued)					
Melton, 1995	57	Cartoon(s)	Humor vs. control	Performance on syllogisms	-.43
Reed & Aspinwall, 1998	66	Survey	Positive vs. control	No. of facts ignored about caffeine and fibrocystic breast disease	-.22
Reed & Aspinwall, 1998	66	Survey	Positive vs. control	Recall of disconfirming information about caffeine and fibrocystic breast disease	.28
Sinclair & Mark, 1995 (Study 1)	39	Velten	Positive vs. negative and neutral	Accuracy of correlational judgments	.43
Sinclair & Mark, 1995 (Study 2)	83	Velten	Positive vs. negative	Accuracy of correlational judgments	.25
Trope & Pomerantz, 1998 (Study 3)	68	False feedback	Positive vs. negative	Interest in receiving feedback regarding liabilities vs. assets	.35
Urada & Miller, 2000 (Study 1)	43	Recall event(s)	Positive vs. neutral	Using broad definition of group membership	.30
Urada & Miller, 2000 (Study 4)	61	Recall event(s), music, candy	Positive vs. neutral	Using broad definition of group membership	.25

Note. Subscript a indicates that the study appears in more than one section or table.

to the frequent experience of positive emotions. In our theoretical framework, it is the experience of positive emotions that leads to the behavioral outcomes we review, and "happiness" describes people who experience such emotions a large percentage of the time (Diener, Sandvik, & Pavot, 1991). Although more inclusive definitions of happiness have been offered by others (e.g., Veenhoven, 1984), we restrict our definition to the experience of frequent positive affect because that definition encompasses the findings we review.

The notion that frequent positive affect is the hallmark of happiness has strong empirical support. Diener and his colleagues (1991) found that the relative proportion of time that people felt positive relative to negative emotions was a good predictor of self-reports of happiness, whereas the intensity of emotions was a weaker predictor. That is, happy people feel mild or moderate positive affect the majority of the time; they do not appear to experience frequent intense positive states. In several studies and using a variety of happiness measures, Diener and his colleagues found that happy people experienced positive moods and emotions most of the time (see also Diener, Larsen, Levine, & Emmons, 1985). Indeed, people who report high levels of happiness appear to have predominantly positive affect—that is, stronger positive feelings than negative ones—80% or more of the time. For example, in a large international sample of more than 7,000 college students in 41 diverse nations collected by Diener's laboratory, individuals who reported that they were pleased with their lives expressed feelings of joy over half of the time.

In the World Value Survey I, which comprises probability samples of almost 60,000 adults in 41 nations, 64% of the respondents reported more positive than negative affect, with only 18% reporting more negative than positive affect (World Value Survey Group, 1994). Notably, of those reporting above-neutral happiness on this survey, nearly everyone reported more positive than negative affect, prompting Diener et al. (1991) to conclude that happiness is best regarded as a state in which people feel a

preponderance of positive emotions most of the time. One reason for the tendency of happy people to feel positive emotions more frequently may be that the chronically happy are relatively more sensitive to rewards in their environment—that is, they have a more reactive behavioral approach system (Gray, 1994)—and are more likely to approach, rather than avoid, rewarding situations (Watson, 1988). In addition, Larsen and colleagues demonstrated that dispositional positive affectivity involves a susceptibility to experience positive moods (Larsen & Ketelaar, 1991; Rusting & Larsen, 1997).

### Characterizing and Measuring High Average Positive Affect

In short, the research evidence supports the notion that it is the amount of time that people experience positive affect that defines happiness, not necessarily the intensity of that affect. Furthermore, happy people have been found to experience positive emotions the majority of the time. Thus, in this article, we identify happy individuals as those who experience high average levels of positive affect. These high average levels of positive affect, which we variously refer to as chronic happiness, trait PA, or subjective well-being, may be rooted in personality predispositions (e.g., a genetically determined "set point"; Lyubomirsky, Sheldon, & Schkade, 2005), the person's current life circumstances, the person's intentional activities, or all of these. Because the existing literature does not discriminate which effects of long-term PA come from which of these different sources, we refer in our article to individuals who show high average level of PA, without reference to the source of this state. However, the findings from the experimental studies suggest that positive emotions can produce desirable outcomes even in the absence of a very happy disposition, although a happy disposition is likely to be a cause of positive emotions.

The research we cite uses a variety of measures of long-term PA, happiness, and well-being. The vast majority of assessment of chronic PA is by self-report measures, which have been validated

**Table 4**  
*Measures of Central Tendency and Dispersion for Effect Sizes by Category*

Category	<i>n</i>	Sampling units	Mean of effect sizes		Median of effect sizes		$\lambda^2$ test of heterogeneity
			Unweighted	Weighted	Unweighted	Weighted	
Cross-sectional data							
Work life	19	34,794	.27	.20	.29	.20	188.82****
Social relationships	22	120,256	.27	.15	.23	.07	3,079.60****
Health	19	17,693	.32	.32	.31	.31	67.98****
Positive perceptions of self and others	16	2,821	.39	.42	.37	.39	59.36****
Sociability and activity	26	11,773	.33	.37	.32	.40	116.20****
Likeability and cooperation	15	6,930	.32	.34	.29	.21	217.64****
Prosocial behavior	7	2,097	.32	.35	.32	.36	11.45
Physical well-being and coping	25	5,093	.29	.31	.31	.35	197.32****
Creativity and problem solving	10	2,275	.26	.24	.27	.28	18.25*
Longitudinal data							
Work life	11	15,080	.24	.05	.25	.03	621.63****
Social relationships	8	5,106	.21	.19	.20	.20	30.43****
Health	26	37,421	.18	.09	.14	.09	418.90****
Positive perceptions of self and others	1	100	.25	N/A	.25	N/A	N/A
Sociability and activity	4	1,117	.25	.29	.24	.33	4.66
Creativity and prosocial behavior	2	2,872	.18	.06	.18	.04	55.67****
Physical well-being and coping	10	2,999	.27	.15	.29	.14	80.98****
Experimental data							
Positive perceptions of self and others	13	900	.36	.34	.36	.33	19.66
Sociability and activity	6	579	.51	.49	.52	.56	16.30**
Negotiation and conflict resolution	8	574	.33	.29	.31	.27	4.15
Prosocial behavior	17	1,170	.43	.37	.36	.34	26.53*
Physical well-being and coping	14	749	.38	.34	.40	.28	18.79
Creativity and problem solving	34	2,707	.25	.16	.30	.25	193.63****

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . \*\*\*\*  $p < .0001$ .

in a number of studies (e.g., Sandvik, Diener, & Seidlitz, 1993; Watson, 2000). In experimental research on induced moods, positive moods are operationalized by the manipulations that induce them; in longitudinal research, the measures depend on moods at the moment or over a recent period such as the past week or month; and, in individual difference research on chronic positive emotions, the measures usually ask about the person's moods in general. Although these methods are not without shortcomings, they appear to be at least moderately valid. A more detailed

discussion of measurement issues is available elsewhere (see Diener, 1994; Diener et al., 1999; Sandvik et al., 1993).

#### *Discriminating Happiness and Positive Affect From Related Constructs*

Notably, a large number of studies have assessed life satisfaction as an indicator of well-being, and such investigations are occasionally included here. Although the construct of satisfaction

is not identical to positive affect—some researchers argue that it has an affective dimension (Veenhoven, 1997), whereas others define it as a purely cognitive judgment of life or its facets (Diener et al., 1999)—we review studies of satisfaction because they frequently represent the only available evidence in an area. Furthermore, life satisfaction and positive affect have been found to correlate at around .40 to .50 in undergraduates (Lucas, Diener, & Suh, 1996) and .52 in business students (Staw & Barsade, 1993). In addition, of people who say they are above neutral in satisfaction with their lives, 85% have been found to report that they feel happy at least half of the time (Lucas et al., 1996). Thus, life satisfaction is a defensible proxy for chronic happiness, in cases in which no studies exist using more direct measures of happiness; Lucas and his colleagues demonstrated that it is separable but not independent from chronic PA. Similarly, Lucas et al. found that optimism is also related to positive affectivity, but separable from it. Again, we sometimes refer to findings based on measures of optimism because the findings can be striking, but we eagerly await the day when a full set of findings based on measures of positive affect, as well as related concepts, is available.

The sections of this article that address research on positive affect similarly include studies using a variety of affect measures and mood inductions. Most researchers focus on global pleasant affect, without discriminating among specific positive emotions or between emotions and moods, and our review reflects this characteristic of the field. Finally, when no research on positive affect is available, we infrequently cite the literature on negative affect or depression. Although positive affect and negative affect often exhibit a degree of independence in the long run (e.g., Diener, Smith, & Fujita, 1995), these two types of affect regularly show moderate inverse relations across individuals, justifying the use of such negative states as the inverse of PA or subjective well-being, to address our questions when more direct measures are absent. Furthermore, depression has been defined not only by high levels of negative affect, but also low levels of PA (Watson & Clark, 1995).

## CROSS-SECTIONAL EVIDENCE

### Question 1: Are Happy People Successful People?

Being successful means accomplishing those things that are valued by one's culture, flourishing in terms of the goals set forth by one's society. Hence, our focal question is whether happy people on average are better able to achieve the values and goals they have been socialized to believe are worthwhile. As Sigmund Freud reportedly once said, *lieben und arbeiten*—to love and to work—are what a “normal” person should be able to perform well. Few people would oppose, in any culture, the addition of health to love and work as a critical ingredient to a successful life.

Accordingly, the following section is divided into three parts: work life, social relationships, and health. Specifically, in this section, we review the cross-sectional evidence addressing the question of whether happy people are relatively more successful in various life domains, ranging from marriage to work, from altruistic community involvement to making money, and from mental health to physical health and longevity.

### *Work Life*

In modern Western society, work fills a large number of people's waking hours. Furthermore, it is important in terms of producing income, influencing self-esteem, creating opportunities for meaningful activities, and producing the goods and services needed by society. Thus, work is highly valued. Are happy people more successful than their less happy peers on job-related and performance variables? We will first review the correlational evidence bearing on this question (for study information and effect sizes, see Panel 1 of Table 1).

### *Employment and Quality of Work*

The cross-sectional evidence reveals that happy workers enjoy multiple advantages over their less happy peers. Individuals high in subjective well-being are more likely to secure job interviews, to be evaluated more positively by supervisors once they obtain a job, to show superior performance and productivity, and to handle managerial jobs better. They are also less likely to show counterproductive workplace behavior and job burnout.

Even before entering the workforce, people with high subjective well-being are more likely to graduate from college (Frisch et al., 2004). Furthermore, happy individuals appear to secure “better” jobs. In one study, employees high in dispositional positive affect had jobs, as rated by trained observers, that had more autonomy, meaning, and variety (Staw, Sutton, & Pelled, 1994). Finally, evidence from a variety of sources shows that happy people are more satisfied with their jobs (e.g., Connolly & Viswesvaran, 2000; Tait, Padgett, & Baldwin, 1989; Weiss, Nicholas, & Daus, 1999). In a meta-analysis of 27 studies of affect and job satisfaction, Connolly and Viswesvaran concluded that 10%–25% of the variance in job satisfaction was accounted for by measures of dispositional affect. In their analyses, the mean corrected correlation between positive affect and job satisfaction was .49.

Once a happy person obtains a job, he or she is more likely to succeed. Employees high in dispositional positive affect receive relatively more favorable evaluations from supervisors and others (Staw et al., 1994). For example, in Staw and colleagues' study, managers of high positive affect employees of three Midwestern organizations gave them higher evaluations for work quality, productivity, dependability, and creativity. Wright and his colleagues have replicated this effect, showing that happy people receive higher ratings from supervisors (Cropanzano & Wright, 1999; Wright & Staw, 1999). Finally, work performance may be more strongly predicted by well-being than by job satisfaction. In two studies, Wright and Cropanzano (2000) found that job performance, as judged by supervisors, was significantly correlated with well-being ( $r_s$  of .32 and .34, respectively), but uncorrelated with measures of job satisfaction ( $r_s$  of -.08 and .08, respectively).

Staw and Barsade (1993) found that, as rated by objective observers, those high in dispositional positive affect performed objectively better on a manager assessment task (including leadership and mastery of information). Other evidence for happy people's relative success on the job includes findings that individuals high in dispositional positive affect are more likely to be in the supervisory in-group (Graen, 1976). Dormitory resident advisors were rated by residents as being more effective if they were high on trait positive affect (DeLuga & Mason, 2000), and happier

cricket players had higher batting averages (Totterdell, 2000). George (1995) found that service departments with happy leaders were more likely to receive high ratings from customers, and that the positive affective tone of the sales force was an independent predictor of customer satisfaction. Corroborating these results, a recent study showed that CEOs of manufacturing companies with high positive affect were relatively more likely to have employees who rated themselves as happy and healthy, and who reported a positive, warm climate for performance. In turn, organizational climate was correlated with productivity ( $r = .31$ ) and profitability ( $r = .36$ ; Foster, Hebl, West, & Dawson, 2004). Of interest, these patterns were not found for negative affect. Finally, optimistic life insurance agents appear to sell more insurance (Seligman & Schulman, 1986), and optimistic CEOs receive higher performance ratings from the chairpersons of their boards and head companies with greater returns on investment (Pritzker, 2002). Coté (1999) reviewed the effects of well-being on job performance, and concluded that the causal relation between pleasant affect and strong performance is bidirectional.

Undoubtedly, one of the reasons that happy, satisfied workers are more likely to be high performers on the job is that they are less likely to show "job withdrawal"—namely, absenteeism, turnover, job burnout, and retaliatory behaviors (Donovan, 2000; Locke, 1975; Porter & Steers, 1973; Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). For example, positive moods at work predicted lower withdrawal and organizational retaliation and higher organizational citizenship behavior (Donovan, 2000; see also Credé, Chernyshenko, Stark, & Dalal, 2005; Miles, Borman, Spector, & Fox, 2002; Thoresen et al., 2003), as well as lower job burnout (Wright & Cropanzano, 1998). Positive affect at work has also been found to be directly associated with reduced absenteeism (George, 1989). Finally, those who experience low arousal positive affect on the job are less likely to want to quit and to be in conflict with other workers (Van Katwyk, Fox, Spector, & Kelloway, 2000).

### *Income*

An important indicator of success in modern societies is income. Do happier people earn higher incomes? Several studies suggest the answer to be yes. For example, a study of 24,000 German residents revealed a correlation between income and life satisfaction of .20 (Lucas, Clark, Georgellis, & Diener, 2004), and a study of Russians revealed correlations between real household income and happiness of .48 in 1995 and .39 in 2000 (Graham, Eggers & Sukhtankar, in press). Among indigenous Malaysian farmers, the correlation between life satisfaction and material wealth (their only available indicator of income) was found to be .23 (Howell, Howell, & Schwabe, in press). According to Diener and Biswas-Diener (2002), most surveys report correlations between income and happiness in the range of .13–.24. In a meta-analysis of 286 empirical investigations of older adults, income was significantly correlated with happiness and life satisfaction, and, surprisingly, more so than with education (Pinquart & Sörensen, 2000).

### *Organizational Citizenship*

Are happy workers relatively better organizational "citizens"? Much of the cross-sectional evidence pertaining to this question

comes from studies of individuals who are satisfied with their jobs. Notably, both positive affect on the job and chronic happiness have been found to predict job satisfaction (Weiss et al., 1999). In turn, job satisfaction predicts organizational citizenship behavior—that is, acts that go beyond the requirements of the job, such as spreading goodwill and aiding coworkers (Donovan, 2000; George & Brief, 1992; Organ, 1988). However, studies of recurring positive affect corroborate these results. Borman, Penner, Allen, and Motowildo (2001) reviewed evidence showing that positive affect predicts organizational citizenship, and that negative affect inversely correlates with it, even when peer ratings rather than self-ratings of citizenship are used. In addition, George and Brief argued that habitual positive affect at work is pivotal in understanding so-called "organizational spontaneity," which includes helping coworkers, protecting the organization, making constructive suggestions, and developing one's own abilities within the organization (see also Donovan, 2000).

### *Community Involvement*

Despite a scarcity of studies in this area, some evidence underscores the contributions of happy people to their communities. Happy people appear to volunteer at higher levels than their unhappy peers for charity and community service groups, including religious, political, educational, and health-related organizations (Krueger, Hicks, & McGue, 2001; Thoits & Hewitt, 2001) and to invest more hours in volunteer service (Thoits & Hewitt, 2001). Furthermore, in a study of Israeli high school students, those with high positive affect were more likely to be involved in community service and to express a desire to contribute to society and be of assistance to others (Magen & Aharoni, 1991). In summary, as we describe in the section on prosocial behavior, happy people seem to be relatively more inclined to help others (Feingold, 1983).

### *Social Relationships*

Berscheid (2003) highlighted the centrality of social relationships to successful human functioning when she wrote that "relationships constitute the single most important factor responsible for the survival of *homo sapiens*" (p. 39). Do happy people have better social relationships than their less happy peers? Our review reveals this to be one of the most robust findings in the literature on well-being. Next, we begin by presenting cross-sectional evidence regarding the question whether individuals high in trait positive affect, happiness, and life satisfaction have more friends and more social support, as well as experience happier interpersonal relationships. Relevant study information is contained in Panel 2 of Table 1.

### *Friendship and Social Support*

Do happy people have more friends and stronger social support networks than less happy people? Cross-sectional studies have documented an association between chronic happiness and the actual number of friends or companions people report they can rely on (Baldassare, Rosenfield, & Rook, 1984; Lee & Ishii-Kuntz, 1987; Mishra, 1992; Phillips, 1967; Requena, 1995), as well as overall social support and perceived companionship (Baldassare et

al., 1984; see Pinquart & Sörensen, 2000, for a large meta-analysis). In the workplace, employees with high dispositional positive affect have been found to receive more emotional and tangible assistance from both coworkers and supervisors (Staw et al., 1994).

Friendship has been found to have one of the highest positive correlations with self-rated happiness (Campbell, Converse, & Rogers, 1976). For example, the happiest college students (the top 10%) have been shown to have high-quality social relationships (Diener & Seligman, 2002). In a meta-analysis of 286 studies, the quantity and quality of contacts with friends was a strong predictor of well-being, even stronger than that of contacts with family members (Pinquart & Sörensen, 2000). Happy people also report being more satisfied with their friends and their social activities (Cooper, Okamura, & Gurka, 1992; Gladow & Ray, 1986; Lyubomirsky, Tkach, & DiMatteo, in press) and less jealous of others (Pfeiffer & Wong, 1989). Not surprisingly, loneliness is negatively correlated with happiness, especially in older adults (Lee & Ishii-Kuntz, 1987), and positively correlated with depression (Peplau & Perlman, 1982; Seligman, 1991).

### *Marriage and Romance*

More than 9 in 10 people worldwide eventually get married (Myers, 2000), and an even greater percentage are in committed intimate relationships. Surveys show that married people are happier than those who are single, divorced, or widowed (Diener et al., 1999). For example, in a study of 19 countries, Mastekaasa (1994) found that married people were happier than all of the other groups. Numerous studies with respondents from diverse cultures support this finding (e.g., Diener, Gohm, Suh, & Oishi, 2000; Glenn & Weaver, 1979; Graham et al., in press; Kozma & Stones, 1983; Lee, Seccombe, & Shehan, 1991; Marks & Fleming, 1999; Stack & Eshleman, 1998). Happy individuals tend to have fulfilling marriages and to be more satisfied with their marriages. Indeed, several writers have suggested that satisfaction with marriage and family life is the strongest correlate of happiness (Headey, Veenhoven, & Wearing, 1991; Myers, 1992, 2000). For example, data from six U.S. national surveys indicate that marital happiness is more strongly related to global, personal happiness than any other kind of domain satisfaction (Glenn & Weaver, 1981). Individual happiness is even associated with high marital satisfaction in one's spouse (Ruvolo, 1998).

The findings on marriage generalize to other romantic relationships. Undergraduates high in trait positive affect are more likely than those low in trait positive affect to describe their current romantic relationship as being of higher quality (Berry & Willingham, 1997), and happy people who are either married or in committed relationships are more likely to describe their partner as being their "great love" than their less happy peers (Willi, 1997).

### *Health*

"A merry heart doeth good like a medicine: but a broken spirit drieth the bones."

—Proverbs 17:22

Are happier people healthier in general? In this section, we review the cross-sectional evidence addressing the question

whether happiness is associated with superior mental and physical health (see Table 1, Panel 3). Because only longitudinal studies can address whether happy individuals have higher odds of survival and longevity, these studies are reviewed in the section discussing the longitudinal literature. For a more detailed review, focusing entirely on the relations between positive affect and physical health, see Pressman and Cohen (2005).

### *Mental Health*

Because positive affective experience has been described as an important component of mental health (e.g., Jahoda, 1958; Taylor & Brown, 1988), it would not be surprising to find that happy individuals are more mentally healthy than their less happy peers. Diener and Seligman (2002) reported that their happiest group of people had few symptoms of psychopathology, such as depression, hypochondriasis, or schizophrenia (see also Chang & Farrehi, 2001; Lu & Shih, 1997; Phillips, 1967). As the absence of positive affect has been argued to be a distinguishing characteristic of depression (L. A. Clark, Watson, & Mineka, 1994; Watson & Clark, 1995), individuals high in trait positive affect are, of course, less likely to suffer from this debilitating condition (e.g., Lyubomirsky et al., 2005), as well as from social phobia or anxiety (Kashdan & Roberts, 2004). Parallel findings are observed when a construct closely related to happiness—optimism—is examined. Dispositional optimism has been shown, for example, to relate to higher levels of self-reported vitality and mental health (Achat, Kawachi, Spiro, DeMolles, & Sparrow, 2000) and lower levels of depression (e.g., Chang & Farrehi, 2001).

Substance abuse is another indicator of poor mental health. Although positive affect is clearly an initial outcome of engaging in some potentially detrimental behaviors (i.e., individuals may smoke or consume drugs to feel good), evidence suggests that positive mood is related to a lower probability of drug use. Thus, not surprisingly, happy individuals are less likely to report a history of substance abuse (Bogner, Corrigan, Mysiw, Clinchot, & Fugate, 2001). Furthermore, lowered positive affect is associated with delinquent activity in adolescents (Windle, 2000).

### *Physical Health*

According to the cross-sectional data, do happy people show superior physical health? Unfortunately, direct, non-self-report evidence is limited. Not surprisingly, happy people self-report better health and fewer unpleasant physical symptoms (Kehn, 1995; Lyubomirsky et al., in press; Mroczeck & Spiro, 2005; Røysamb, Tambs, Reichborn-Kjennerud, Neale, & Harris, 2003). Positive affect has been shown to relate to quality of life in cancer patients over the course of their illnesses (Collins, Hanson, Mulhern, & Padberg, 1992) and to smaller allergic reactions among healthy students (Laidlaw, Booth, & Large, 1996). In a study of individuals with sickle cell disease, positive mood was associated with fewer emergency room and hospital visits, fewer calls to the doctor, less medication use, and fewer work absences (Gil et al., 2004). In addition, those patients with positive moods were relatively less likely to report pain on the same day and 2 days later (Gil et al., 2004). The number of days of work missed because of health problems was also related to happiness in a large Russian study (Graham et al., in press).

Finally, studies using variables correlated with subjective well-being show similar results. Optimism predicted less pain in a sample of aging veterans (Achat et al., 2000), even after controlling for such variables as age, body mass index, and chronic health conditions; optimistic women were less likely to deliver low-birth weight infants (Lobel, DeVine, Kaminer, & Meyer, 2000).

### *Summary*

In summary, our review of the cross-sectional empirical literature suggests that happiness is positively correlated with indicators of superior mental and physical health. Happiness, as well as the concomitant experience of frequent positive affect, likely plays a role in health through its effects on social relationships, healthy behavior, stress, accident and suicide rates, and coping, as well as possible effects on immune function. These variables are discussed in the next section.

### *Conclusion*

Are happy people better off? Although the research in some areas is limited, our examination of the cross-sectional correlational literature thus far suggests that high subjective well-being is related to positive outcomes in many areas of life. Specifically, as displayed in the first three panels of Table 1 and on the top of Table 4, happy people appear to be more successful than their less happy peers in the three primary life domains: work (mean  $r = .27$ ),<sup>1</sup> relationships (mean  $r = .27$ ), and health (mean  $r = .32$ ).

### **Question 2: Are Long-Term Happiness and Short-Term Positive Affect Associated With Behaviors Paralleling Success?**

The effect sizes presented in Tables 1 and 4 indicate robust associations between happiness and desirable life outcomes. Is this because successes bolster happiness, or the reverse? In this section, we pull together evidence consistent with the argument that it is happiness that promotes success, in part because happy individuals show numerous adaptive characteristics. That is, we turn to examining whether happy people are relatively more likely to exhibit behaviors and thoughts that parallel culturally valued success and thriving—that is, the attributes, resources, and skills that help people thrive and succeed.

Earlier, we reviewed evidence showing that the key indicator of happiness is the experience of frequent positive emotions. Hence, it is also important to investigate whether positive emotions and moods are associated with desirable characteristics. We anticipate that the correlations involving long-term happiness will be parallel to those of short-term positive moods.

In summary, when the relevant data are available, we document the characteristics that cooccur with happiness and PA. In conducting this review of the literature, we attempted to find as many empirical investigations as possible that included measures of happiness and positive affect and at least one other valenced construct. The resulting collection of articles yielded six categories of studies reporting significant correlates of long-term happiness and short-term PA:

1. positive perceptions of self and others,

2. sociability and activity,
3. likability and cooperation,
4. prosocial behavior,
5. physical well-being and coping, and
6. problem solving and creativity.

Each category is discussed in detail in the following sections, and relevant study information is presented in the last six panels (Panels 4–9) of Table 1. Effect sizes appear in Tables 1 and 4.

### *Positive Perceptions of Self and Others*

#### *Self-Perceptions*

Are self-nominated chronically happy people inclined to evaluate themselves and their futures in positive ways? It appears that happy people are characterized by high personal competence and self-esteem (Campbell et al., 1976; Kozma & Stones, 1978; Lyubomirsky et al., 2005; Scheufele & Shah, 2000; Schimmack, Oishi, Furr, & Funder, 2004; Tarlow & Haaga, 1996), optimism (Campbell, 1981; Lyubomirsky et al., in press), and a sense of personal mastery and control (Csikszentmihalyi & Wong, 1991; Grob, Stetsenko, Sabatier, Botcheva, & Macek, 1999; Lyubomirsky et al., in press; Ryff, 1989). For example, Lucas and colleagues (1996) found that life satisfaction was consistently related to self-esteem and optimism in multimethod assessments in which one characteristic was measured by self-report and the other was reported by informants. Happiness is also related to positive perceptions of all life domains. Happy and contented individuals have been found to be satisfied with their family life, their romantic relationships and their friends, their health, their education and their jobs, their leisure activities, and even their housing and transportation (e.g., Lyubomirsky et al., in press; Weiss et al., 1999). Are the correlational findings regarding short-term positive affect parallel to those for long-term happiness? The few correlational studies in this area examining happy moods suggest that PA is also associated with relatively more positive self-perceptions. For example, in a correlational study, higher levels of positive affect were related to being less self-critical (Mongrain & Zuroff, 1995). Furthermore, participants in a naturally occurring good mood set higher goals for themselves and reported more self-efficacy on a laboratory clerical task (Jundt & Hinsz, 2001), and cricket players judged their performances more favorably (Totterdell, 2000).

### *Perceptions, Memories, and Judgments of Others*

Chronically happy individuals have also been shown to have a more positive attitude toward others. For example, in one study, participants interacted with a female confederate in the laboratory, then viewed a series of videotapes depicting an unfamiliar student in various situations (Lyubomirsky & Tucker, 1998). Relative to their unhappy peers, happy participants recalled the person they

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<sup>1</sup> Mean  $rs$  cited within the text are all unweighted by sample size, as our goal was to generalize across studies, not across individuals.

met in more favorable terms—for example, as kind, self-assured, open, tolerant, and warm—and reported wanting to be friends with her and to be her partner in a class project. Happy participants also liked the person they saw on videotape more than did unhappy ones. Berry and Hansen (1996) found that when participants were “accidentally” left alone with a fellow student, those high in trait PA liked their partner more than those low in trait PA. In another study, happy faculty were found to write relatively more favorable letters of recommendation, and happy undergraduates wrote relatively more positive recommendations for hypothetical employees (Judge & Higgins, 1998). Finally, college women who were generally happy were less likely to be hostile toward other women than women who were less happy (Cowan, Neighbors, DeLaMereaux, & Behnke, 1998).

Happy people also feel more positive than their unhappy peers toward the people that they know. They judge their friends, spouses, and families more favorably (Cooper et al., 1992; Gladow & Ray, 1986; Glenn & Weaver, 1981; Lyubomirsky et al., in press), and are less jealous of other people competing for their partner’s affections (Pfeiffer & Wong, 1989). However, we found only one correlational study examining whether short-term PA is also associated with greater liking and fondness for others. In this investigation, happy moods were found to be associated with positively toned inferences and attributions (Mayer, Mamberg, & Volanth, 1988). For example, after reading a fictitious biography of “Jim,” students who had relatively higher positive affect were more likely to agree with positive inferences from the narrative (e.g., “Jim is interesting”) and less likely to agree with negative inferences (e.g., “Jim will get divorced”; Mayer et al., 1988).

### *Sociability and Activity*

Do happy people tend to be social and active people? In this section, we review the cross-sectional literature examining whether chronically happy people are relatively more likely to participate in a variety of social and physical activities, to enjoy their leisure time, and to experience more energy and “flow” (Csikszentmihalyi, 1999).

### *Sociability and Extraversion*

The literature on the relations of happiness with sociability and extraversion suggests that happy individuals have outgoing, extraverted personalities. Extraverts are warm, gregarious, sociable, assertive, interested in new things, affiliative, lively, active, and energetic (see Lucas, 2001, for a review). Extraversion has been found to be related to happiness, chronic PA, and life satisfaction in many investigations—among both undergraduates and old people, in questionnaire studies and in diary studies, and across many nations (e.g., Brebner, Donaldson, Kirby, & Ward, 1995; Diener & Seligman, 2002; Lucas, Diener, Grob, Suh, & Shao, 2000; Lyubomirsky et al., in press). Indeed, the findings of a meta-analysis revealed that, of the most widely researched personality traits, the highest average correlation with happiness was affiliation, the inclination to relate to other people (DeNeve & Cooper, 1998). It is noteworthy that Lucas and colleagues (2000) showed that positive affectivity is the “glue” holding together various aspects of extraversion such as ascendance, sociability, and affiliation.

Cross-sectional studies have shown that levels of positive affect are also positively correlated with measures of extraversion and sociability (Costa & McCrae, 1980; Griffin, Mroczek, & Spiro, in press; Headey & Wearing, 1989). For example, in one experience sampling study, high school students from the United States and Italy were beeped several times a day over the course of a week (Csikszentmihalyi & Wong, 1991). Positive affect reported during any particular time of day was related to feeling sociable. Harker and Keltner (2001) found that women who expressed positive affect in their college photos were more likely to describe themselves as high in affiliation—that is, as warm, cheerful, pleasant, sociable, understanding, contented, and affectionate—and were more likely to be described as such by observers.

### *Social Interaction, Activity, and Energy*

The empirical evidence suggests that individuals high in trait positive affect, happiness, or satisfaction tend to be more social, active, and energetic. Cross-sectional investigations reveal that happy and satisfied people report engaging in a greater frequency of activities, in general (Burger & Caldwell, 2000; Matikka & Ojanen, in press; Mishra, 1992; Veenhoven, 1994; Watson, Clark, McIntyre, & Hamaker, 1992), and in social interactions (Gladow & Ray, 1986; Lucas, 2001; Watson, 1988) and group leisure activities, in particular (Mishra, 1992). Relative to their less happy peers, happy individuals also report having stronger social support (Matikka & Ojanen, in press), attending club meetings more frequently (Bahr & Harvey, 1980; Lebo, 1953), and holding more organizational affiliations (Bahr & Harvey, 1980; Mishra, 1992). This flurry of activity does not appear to go unnoticed. Happier individuals are more likely to be rated as energetic and active by their families and friends (Diener & Fujita, 1995; Schimmack et al., 2004).

Okun and colleagues meta-analyzed 556 sources to determine the relation between happiness and the frequency of social activities (both formal and informal) in older adults (Okun, Stock, Haring, & Witter, 1984). A positive significant association was found, regardless of type of activity (e.g., having to do with voluntary organizations vs. friends) or activity partner (e.g., friends vs. neighbors). Furthermore, in a study of men and women over 60 years old, happiness was related to a desire to learn a new skill or take a class, an expressed need for a larger number of cultural and educational activities in their community, and being informed about politics (Lebo, 1953). Thus, happier people appear to be not only more social and more active, but also more interested and more informed.

In summary, individuals high in happiness or trait PA appear to be more likely to approach rewarding activities, especially social ones, and may even be more sensitive to pleasurable stimuli in general (such as social interactions or hobbies; Watson, 1988). Indeed, positive emotionality has been found to relate to approach goals (Elliot & Thrash, 2002).

What about research relevant to transient mood? The evidence indicates that positive mood is also related to relatively greater involvement in activities, more frequent social interactions, and increased feelings of energy. For example, the results of 2- to 13-week long diary studies reveal that high levels of positive affect, as reported in daily or weekly logs, are associated with reports of spending relatively more time socializing with friends,

family, or romantic partners (Lucas, 2001; Watson et al., 1992) and a greater frequency of being engaged in a variety of activities (e.g., going to a party, a museum, or out for a meal; going shopping or on a week-end trip; Cameron, 1975; Watson et al., 1992). In an experience sampling study, positive affect reported during any particular time of day was related to feeling alert and active, to being with friends, and to engaging in a variety of leisure activities (e.g., sports and games, socializing, and arts and hobbies; Csikszentmihalyi & Wong, 1991; see also Lucas, 2001).

### *Enjoyment of Activities and Social Interactions*

The data suggest that happy people participate in more activities than their less happy peers. However, do they derive more satisfaction from them? Extensive correlational evidence indicates that, indeed, happy individuals are more likely to enjoy their leisure activities and social interactions, to experience more "flow" states, and to be more satisfied with their activities in general. Lu and Argyle (1991) found that happy community-dwelling men and women were more likely to report enjoying leisure activities and group activities. Happiness has been found to be significantly related to satisfaction with one's leisure and recreational activities among both students and retirees (Kahana et al., 1995; Lyubomirsky et al., in press; Veenhoven, 1994). Laboratory and diary studies corroborate these findings—that is, happy individuals appear to have more pleasurable and more successful social interactions with others. When female students were left alone in a room with a peer, those high in trait PA were more satisfied with the conversation that resulted; liked their partner more; and reported that their conversation was more enjoyable, pleasant, smooth, relaxed, and less awkward and forced than those low in trait PA (Berry & Hansen, 1996). Kashdan and Roberts (2004) described very similar findings. Furthermore, in a daily diary study, students high in trait PA reported engaging in more enjoyable social interactions than their low positive affect peers (Berry & Hansen, 1996). Finally, in a study of working adults, global happiness was found to be associated with intrinsically rewarding experiences—that is, activities that the individual wants to be doing for their own sake (Graef, Csikszentmihalyi, & Gianinno, 1983). The authors speculated that chronically happy people may be able to perceive any activity—even routine, commonplace situations—as intrinsically motivating, and therefore discover rewards even in ordinary, mundane events.

Correlational studies of transient positive moods have also found such moods to be associated with satisfying social interactions. For example, when engaged in an intimacy-building task, those experiencing positive affect are relatively more likely to feel closer and more attracted to their partner (Kashdan & Roberts, 2004). Furthermore, positive moods have been linked with the intrinsically rewarding state called flow. The concept of flow was introduced by Csikszentmihalyi (1975, 1997), who described it as an experience so engrossing and enjoyable, it is worth doing for its own sake. When in flow, people report feeling enraptured, as though in a different reality, lacking self-consciousness, and lacking a sense of the passage of time. Indeed, transient positive affect is often accompanied by flow (Hektner, 1997). For example, the results of experience sampling studies suggest that hour-by-hour experiences of positive affect are related to reports of being in flow (Csikszentmihalyi & Wong, 1991; Hektner, 1997).

### *Likability and Cooperation*

#### *Likability*

Is there truth in the sentiment that happy people are disliked because they are shallow and annoyingly cheerful? The existing cross-sectional studies actually show the reverse pattern of results. That is, most respondents like happy people much more than they like their less-than-happy peers. Happy and satisfied individuals are judged as more physically attractive (Diener, Wolsic, & Fujita, 1995; Mathes & Kahn, 1975); more intelligent and competent (Diener & Fujita, 1995); more friendly, warm, and assertive (Schimmack et al., 2004); less selfish (Rimland, 1982); more moral; and even more likely to go to heaven (King & Napa, 1998). Diener and Fujita (1995) found that friends and family members of happy students, relative to those of less happy ones, rated them as more socially skilled (e.g., more articulate and well mannered), better public speakers, self-confident, and assertive, and as having more close friends, a strong romantic relationship, and more family support. These findings were replicated in a recent study, which found that friends of students relatively high on chronic happiness evaluated them more favorably relative to their peers on a variety of attributes and skills, such as academic ability, self-respect, selfishness, and pretentiousness (Taylor, Lerner, Sherman, Sage, & McDowell, 2003). Furthermore, happiness in children, as rated by their teachers, was found to relate to the children's popularity (S.-M. Chen, 1980).

In other studies exploring the happiness–likability relation, secondary school and college students read stories about hypothetical people. Second through eighth graders judged the happiest targets as the ones most likely to help (Perry, Perry, & Weiss, 1986), and undergraduates, no matter what mood they themselves were experiencing, judged the happiest targets as being more likable (Bell, 1978). Finally, in laboratory studies, when female students were left alone with a peer, the partners of the high PA women found the social interaction to be more enjoyable and of higher quality, and so did neutral observers of the interaction (Berry & Hansen, 1996); objective observers rated participants high in dispositional positive affect as evidencing stronger leadership while performing a management task (Staw & Barsade, 1993).

Happy moods also tend to lead people to appear more appealing and inviting to possible interaction partners (Veenhoven, 1988). Support for this assertion comes from an intriguing study by Harker and Keltner (2001), who rated the positive affect expressed in yearbook photographs of graduating seniors from a women's college. The personalities of the women in the photos were later judged both by observers (who interacted with them in person when the women were in their 20s) and by coders (who only viewed the photos). The observers judged women who had shown the highest levels of sincere PA (i.e., Duchenne smiles) as relatively higher on the personality dimension of affiliation (e.g., generous, considerate, protective of close ones, and capacity for close relationships) and lower on the dimension of negative emotionality (e.g., not irritable, fearful, or hostile toward others). The judges, who only had the opportunity to see the photos, inferred that women with high positive affect were also relatively higher in affiliation and lower in negative emotionality, as well as being higher in positive emotionality (e.g., cheerful, sociable, and appreciative of and responsive to humor) and competence (e.g., productive, dependable, and high intellectual capacity). In summary,

women who expressed genuine happiness were liked more than women who looked less happy. Indeed, the judges of the photos reported that they expected future hypothetical interactions with the high positive affect women to be relatively more rewarding.

A study by Kashdan and Roberts (2004) corroborated these findings. Participants were asked to answer a series of questions with two peers (actually confederates), such that ever-greater levels of self-disclosure and intimacy were required. The higher the participants' levels of PA, the more likely that the confederates felt themselves interpersonally closer and more attracted to them.

It is worth noting that, although the correlational studies described in this section cannot definitively establish causality, the causal direction is unlikely to flow solely from likability to happiness. That is, studies in which informants rate hypothetical targets or fresh acquaintances are unlikely to suggest that the informants' high ratings are the cause of the target's happiness.

### *Negotiation and Conflict Resolution*

Are happy people or those experiencing pleasant moods superior at resolving conflict? The majority of research in this area involves laboratory experiments, which will be described later. To our knowledge, the only study to examine conflict resolution in chronically happy people was an investigation of the CEOs of 62 U.S. companies and their top managers. The results of this study revealed that work groups whose members were high in average trait PA were less likely to experience conflict and more likely to cooperate (Barsade, Ward, Turner, & Sonnenfeld, 2000). Furthermore, a correlational study of PA—also conducted in a work setting—found that the experience of particular positive emotions at the office is related to reduced conflict with colleagues (Van Katwyk et al., 2000).

### *Prosocial Behavior*

"The good life, as I conceive it, is a happy life. I do not mean that if you are good you will be happy; I mean that if you are happy you will be good."

—Bertrand Russell

In reviewing the cross-sectional research on prosocial behavior, we address the question whether happy people, as well as those experiencing pleasant moods, are inclined to be more altruistic, generous, and charitable people.

Individuals who score high on happiness or trait PA report in correlational questionnaire studies a relatively greater interest in helping people (Feingold, 1983), a tendency to act in a prosocial or cooperative manner (e.g., as enjoying sharing or helping others; Rigby & Slee, 1993), and intentions to perform specific altruistic, courteous, or conscientious behaviors at work (e.g., helping a colleague with work problems despite one's own heavy workload; Williams & Shiaw, 1999). Happy people also report having performed more altruistic acts in the recent past (e.g., shopping for a sick friend or stopping to help a stranger; Krueger et al., 2001). Furthermore, in two studies that tracked subjects' behaviors from once to seven times a day, students high in trait PA reported spending a relatively greater percentage of their time helping others (Lucas, 2001).

Have similar effects been found in cross-sectional investigations of transient mood—that is, is the day-to-day experience of positive

affect also related to generosity? The few studies in this area support an affirmative conclusion. For example, according to the results of experience sampling and diary studies, the percentage of time spent in a good mood was associated with self-reported altruism among school-age youths (Csikszentmihalyi, Patton, & Lucas, 1997) and with amount of time spent helping others among college undergraduates (Lucas, 2001). An investigation of high school students found that those who reported having the most intense positive experiences were relatively more likely to be involved in community service activities (e.g., volunteering) and reported more desires to contribute to society and to be of assistance to others (Magen & Aharoni, 1991, also cited previously). Finally, in a study of preschoolers, those who displayed happy moods most frequently were also most likely to show empathy toward others—for example, by providing positive reinforcement or comfort (Strayer, 1980).

Research with working adults has shown similar effects. For example, positive affect experienced at work has been related to intentions to perform behaviors that are beyond the call of duty (Williams & Shiaw, 1999), even after controlling for such variables as demographics and trait positive affect. Positive moods experienced at work have also been related to actual prosocial organizational behavior. Even after controlling for dispositional affect, positive affect in salespeople predicted more helping of customers and more customer service, as well as more extrarole prosocial behavior on the job (George, 1991).

In summary, cross-sectional investigations suggest that happy people are inclined to be kind and charitable people. Furthermore, these findings dovetail with the work on links between happiness and interpersonal relationships. If happy people are more altruistic, they will be liked more, will profit more from future social interactions (i.e., through the norm of reciprocity), and will have stronger and more supportive social networks.

### *Physical Well-Being and Coping*

The literature on physical well-being, healthy behavior, and coping has not generally focused on positive affect or positive experience (for some notable exceptions, see Antonovsky, 1988, 1993; Seligman, 1991; Snyder, 2000). Instead, the overwhelming majority of research in this area has examined the effects of hostility, stress, depression, and anxiety (Kubzansky & Kawachi, 2000). Thus, few studies on health have measured well-being, although some have included assessments of such related constructs as optimism, hope, and sense of humor. Next, we review the small number of relevant correlational studies available in this area.

### *Health Perceptions*

Happy people consistently report themselves as healthier. Relative to their less happy peers, happy respondents rate themselves higher in global health (e.g., Achat et al., 2000; Kehn, 1995; Lyubomirsky et al., in press; Mroczek & Spiro, 2005; Røysamb et al., 2003; Stones & Kozma, 1986, as cited previously) and report higher levels of social and physical functioning (Pinquart & Sörensen, 2000) and lower levels of pain (Achat et al., 2000; Røysamb et al., 2003, as cited earlier). Additionally, well-being is related to higher rates of patient compliance, a predictor of good

health (DiMatteo, Lepper, & Croghan, 2000). However, because positive self-report biases could account for these findings, they must be considered together with other data on the health and coping abilities of happy people (see next). Furthermore, it is notable that Watson (2000) reported small but positive correlations between measures of positive emotionality (extraversion and positive temperament) and injury visits to a university health center ( $r_s = .12$  and  $.15$ )—suggesting, perhaps, one of the downsides of the active lifestyle of happy folk. In addition, extraversion and positive temperament were related to more health visits for illness ( $r_s$  range from  $.15$  to  $.17$ ) in two samples. These modest correlations may suggest that extraverts show a “readiness to use services” (Rosenstock & Kirscht, 1979).

Not surprisingly, high positive affect and low negative affect have also been associated with subjective reports of better health (Benyamin, Idler, Leventhal, & Leventhal, 2000; Pettit, Kline, Gencoz, Gencoz, & Joiner, 2001; Sullivan, LaCroix, Russo, & Walker, 2001) and fewer physical symptoms (Watson, 1988; Weinglert & Rosen, 1995; though Watson & Pennebaker, 1989, found no relation between PA and symptom reports [ $r_s$  between  $-.19$  and  $.04$ ]). In one investigation, individuals who worked hard to maintain their happy moods reported fewer illnesses (Goldman, Kraemer, & Salovey, 1996).

### *Healthy Behavior*

As delineated previously, research evidence reveals that chronically happy people are relatively more energetic and more involved in a variety of social, recreational, occupational, and physical activities (e.g., Mishra, 1992; Riddick, 1985; Veenhoven, 1994; Watson, 1988; Watson et al., 1992). Happy individuals are also less likely to engage in a variety of harmful and unhealthy behaviors, including smoking, unhealthy eating, and abuse of drugs and alcohol (e.g., Graham et al., in press; Piko, Gibbons, Luszczynska, & Teközel, 2002). Within the Big Three approach to personality (L. A. Clark & Watson, 1999), psychotism and neuroticism tend to be viewed as most relevant to addictions (e.g., Eysenck, 1997), although it is notable that drug addicts tend to have relatively lower scores on extraversion (see Eysenck, 1997, for a review). L. A. Clark and Watson (1999) likewise reported that disinhibition (rather than negative or positive temperament) tends to be related to drug use, smoking, drinking alcohol, and positive attitudes about promiscuous sex. Thus, research has tended to support the notion that, to the extent that positive emotionality is relevant to the question of addictions and risky behavior, it is related to lowered levels of these unhealthy states.

Although the data are quite limited, short-term positive emotions also appear to be associated with illness preventative and health promotive behaviors and behavioral tendencies. For example, recent positive happy moods were associated with less cigarette use and alcohol intake (Pettit et al., 2001) and with higher sleep quality and quantity (Bardwell, Berry, Ancoli-Israel, & Dimsdale, 1999). Furthermore, in addition to its links with higher levels of activity and energy, positive affect is positively correlated with higher levels of physical exercise (Lox, Burns, Treasure, & Wasley, 1999; Watson, 1988). In a study of women at moderate risk for breast cancer, positive affect predicted engagement in physical activity, particularly during leisure time (Audrain, Schwartz, Herrera, Golman, & Bush, 2001). Physical activity, in

turn, is associated with many positive health outcomes (Fraser & Shavlik, 2001; Shephard, 1993). Thus, positive affect might benefit health by indirect relations to health promoting activities.

### *Immunity*

The evidence described previously suggests that happiness and positive affect may be associated with enhanced physical well-being because of their relation to such variables as physical exercise and social support, which, in turn, are linked to improved health. However, might long-term happiness and short-term positive affect also have direct effects on health? One mechanism through which psychological states impinge on physical health directly is through their effects on the immune system. Immune system disruption has been implicated in the etiology and progression of a wide array of illnesses (cf. Baum & Polusny, 1999; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002).

Before highlighting the research on transient mood, we first address whether happy people—that is, those who experience habitual positive moods—might show enhanced immune function. Unfortunately, direct evidence on this question is practically nonexistent. Certainly, research supports the notion that the chronic absence of positive affect is related to immune deficiency. Long-term deficits in positive mood—that is, sadness or depressive symptoms—are associated with decreased lymphocyte production (McGuire, Kiecolt-Glaser, & Glaser, 2002).

Individuals with attributes closely related to happiness have also been found to show heightened immunocompetence. For example, in two separate investigations, humor was associated with enhanced immune function in participants who were predisposed to use humor as a routine coping device (Dillon, Minchoff, & Baker, 1985; Dillon & Totten, 1989). Furthermore, sense of coherence (Antonovsky, 1993) was associated with enhanced natural killer (NK) cell activity among older adults facing the stress of relocation (Lutgendorf, Vitaliano, Tripp-Reimer, Harvey, & Lubaroff, 1999). Finally, in another relevant study, optimism was negatively associated with incidence of upper respiratory infection (Lyons & Chamberlain, 1994).

Research on naturally occurring moods corroborates these findings. It should be noted, however, that results linking positive mood with immunity are rarely straightforward and depend on the levels of negative affect experienced, as well as on the particular immune measure used in a given study (Booth & Pennebaker, 2000). In one investigation, immunity was elevated on days when positive mood predominated and was reduced on days when negative mood predominated (Stone, Cox, Valdimarsdottir, Jandorf, & Neale, 1987). Controlling for negative mood, however, the effect for positive mood fell to marginal significance. In a similar study, Stone and colleagues (1994) found enhanced antibody activity on days with more positive than negative moods. The experience of uplifts during daily hassles has been related to heightened NK cell activity in individuals with cancer histories (Vitaliano et al., 1998; see also Lyons & Chamberlain, 1994). Other research has also shown a relation between positive affect and NK cell activity. For example, naturally occurring positive mood was found to be associated with higher levels of NK cells, but only among women who reported some negative mood (Valdimarsdottir & Bovbjerg, 1997). These results may indicate a possible buffering of the effects of negative mood by positive moods (Booth & Pennebaker,

2000), or they may distinguish the healthy happy from the depressive happy.

### Coping

Do long-term and short-term PA also play a positive role in effective coping with stress and challenge? If yes, this finding may elucidate another pathway through which happiness and positive emotions might have salutary effects on health. We explore this issue in this section.

Cross-sectional research pertaining to the question of whether happy people are better copers is primarily indirect, although a few studies have assessed global happiness. For example, McCrae and Costa (1986) examined personality variables as predictors of effective coping. They concluded that positive affectivity, or trait PA, was associated with more effective and more "mature" coping efforts. A strong correlation has also been found between positive emotionality and coping by active engagement (Miller & Schnoll, 2000).

A number of constructs have been introduced in the coping literature to explain the capacity of some individuals to maintain a positive outlook during negative life circumstances. Optimism (defined as attributional style, Seligman, 1991, or as general positive expectancy, Carver & Scheier, 2001), sense of coherence (Antonovsky, 1988, 1993), hope (Snyder, 2000), and hardiness (Maddi & Kobasa, 1991) all refer to general traits that are correlated with happiness and promote positive feelings during difficult circumstances, and all have been linked with important health outcomes (e.g., Maruta, Colligan, Malinchoc, & Offord, 2000; Peterson, Seligman, Yurko, Martin, & Friedman, 1998; Snyder, 2000). For example, research has demonstrated that optimistic individuals attend to and remember potentially threatening health-relevant information more than pessimistic ones (Aspinwall, 1998; Aspinwall & Brunhart, 1996) and use humor and positive reframing, instead of denial, when coping with highly stressful events (Carver et al., 1993). A similar construct—hope—was also found to relate to adaptive coping with cancer (Irving, Snyder, & Crownson, 1998). One possibility is that the effects of these constructs on positive mood mediate their relations to physical health outcomes (as has been shown by Segerstrom, 2000, in the case of optimism). Although these concepts differ in a variety of ways, their correlations with positive affect are well established (cf. L. A. Clark & Watson, 1991).

To the extent that happiness predisposes people to look on the bright side, it should relate to superior coping during difficult times. For example, in one study, happy students reported experiencing similar types of both positive and negative life events as did their less happy peers, but the happy students tended to think about both types of events more favorably and positively—for example, by seeing humor and didactic value in adversity and by emphasizing recent improvement in their lives (Lyubomirsky & Tucker, 1998). In summary, research supports the argument that the extent to which a person can maintain sensitivity to pleasurable opportunities, even in difficult times, may be highly adaptive.

Research in a variety of areas demonstrates that positive experience and positive emotion, even in the midst of stress or challenge, may be associated not with maladjustment and denial, but, rather, with particularly good outcomes. Indeed, Aspinwall (1998) has argued cogently for the recognition of positive affect as a

resource in coping and self-regulation. Thus, although previous models viewed positive affect as primarily sending a "maintain" message to the goal seeker (e.g., Carver & Scheier, 1981, 1990), Aspinwall pointed out the role of positive affect in harnessing attention even to negatively tinged information.

A number of studies are consistent with this argument. Keltner and Bonanno (1997) showed that the expression of genuine positive emotion (particularly Duchenne laughter) during bereavement relates to heightened adjustment on a variety of levels. Fredrickson and colleagues found that positive emotions undo the effects of negative emotion on cardiovascular function (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Bramigan, & Tugade, 2000). A study of coping with stress following the September 11, 2001, attacks in the United States found that resilient individuals were less likely to experience depression and more likely to report increases in psychological growth after the attacks (Fredrickson, Tugade, Waugh, & Larkin, 2003). Of importance, positive emotions experienced after the attacks completely mediated the relation between resilience and coping variables. Finally, Pennebaker (1993) found that those who used relatively more positive than negative emotion words while writing expressively during difficult or distressing times were most likely to benefit from disclosive writing (cf. Pennebaker & Francis, 1996; Pennebaker, Mayne, & Francis, 1997). Thus, the experience of the positive in the context of traumatic or negative events has implications for psychological and physical well-being. These moments of positive emotion may be viewed as opportunities to replenish one's system, which has been depleted by grief (cf. Folkman & Moskowitz, 2000, for a similar view).

### Creativity and Problem Solving

"The happiest people are those who think the most interesting thoughts."

—William Lyon Phelps

### Flexibility and Originality

The few existing correlational studies in this area suggest that chronically happy people score higher on measures of creativity. For example, relatively higher scores on tests of creativity have been documented in happy, relaxed, and bold children (Cacha, 1976) and in individuals with hypomanic personality traits (Schulberg, 1990). Certain personality characteristics such as flexibility and openness are related to creativity, and these traits are most common among those who have periods of hypomania without depression, but are not as common in those who have hypomania with intermittent depression (Shapiro & Weisberg, 1999). Notably, the most creative group in the Shapiro and Weisberg study was composed of individuals with elevated moods and without symptoms of depression. Furthermore, eminently creative people have been shown to be characterized by dominance and self-confidence (Feist, 1998)—two facets of extraversion to be consistently related to long-term well-being (e.g., Lucas et al., 2000). However, Openness (the fifth major factor in the Big Five Factor Model) is usually not related to chronic happiness (McCrae & Costa, 1991;  $r_s = .01$  and  $-.05$ ), suggesting that the connection between happiness and flexibility is at the momentary level, not necessarily at the long-term level of personality.

Obviously, research on whether happy individuals are relatively more flexible is scarce, and much more research is needed to draw firm conclusions in this area. Fortunately, studies of naturally occurring moods—although also rare—corroborate these findings. For example, Richards (1994) described “everyday creativity” in which people find new ways to approach activities and problems in their daily lives. She found that everyday creativity occurred when people were in a normal or elevated mood, and rarely when they were depressed. Positive moods—particularly those involving high-arousal emotions such as excitement or joy—are also related to curiosity and desire for exploration (Kashdan, Rose, & Fincham, 2004). In a field study, positive affect expressed by employees on the job was correlated .30 with supervisors’ evaluations of the employees’ creativity (Staw et al., 1994). Finally, mildly manic states have been found to be associated with creative episodes in such fields as poetry (Richards, 1994; Richards & Kinney, 1990; cf. Jamison, 1990).

### *Performance on Complex Mental Tasks*

Surprisingly, few cross-sectional studies have examined the performance of chronically happy people on complex mental tasks. One exception is an investigation by Staw and Barsade (1993), who had participants perform a manager assessment task that was based on a complex 3-hr “in-basket task”—that is, a procedure assessing a person’s ability to effectively complete a series of diverse assignments. As rated by objective observers, those high in dispositional positive affect performed better on the manager assessment task—for example, they received relatively higher scores on mastery of information. In another set of studies, after being led to believe that they “failed” on an earlier task, chronically happy individuals showed superior performance, relative to less happy individuals, on the reading comprehension portion of the Graduate Record Examination (Lyubomirsky, Kasri, Zehm, & Dickerhoof, 2005).

Research on choice and decision making, albeit indirect, further suggests that happy people make better and more efficient decision makers. For example, people high in well-being appear to be less susceptible to negative influences from advertising (Geier, Schwartz, & Brownell, 2003). Happy individuals are also more likely than their unhappy peers to optimize or sacrifice in their decision making, rather than maximizing to achieve the best outcome regardless of the cost in time and effort (B. Schwartz et al., 2002). That is, unhappy people carefully search for the very best answer, regardless of the importance of the context or the novelty of the problem. This effortful strategy is likely to be inefficient in situations that have been frequently encountered in the past and for which a reasonable solution has been found, as well as in much of life in which time is limited and tasks are complex.

Is positive affect also associated with enhanced performance on complex mental tasks? The overwhelming majority of the literature in this area consists of experimental studies; hence, these investigations are discussed in a later section.

### *Conclusion*

In this section, we reviewed cross-sectional evidence suggesting that both long-term well-being and momentary positive affect are associated with a number of desirable characteristics, including

positive construals of self and other (mean  $r = .39$ ), sociability and activity (mean  $r = .33$ ), prosocial behavior (mean  $r = .32$ ), popularity (mean  $r = .31$ ), healthy behavior (mean  $r = .33$ ), high immune functioning (mean  $r = .33$ ), and good coping with distress (mean  $r = .34$ ). The evidence, although less conclusive, also suggests that chronically happy people and those in pleasant moods might be more creative as well as more efficient problem solvers (mean  $r = .26$ ) and might show superior conflict resolution skills (mean  $r = .23$ ). Most, if not all, of these attributes appear to promote active goal involvement, which is adaptive in many circumstances and likely facilitates success in a broad range of life domains. However, additional research is needed in many of the areas we reviewed, because only a handful of studies are available that are relevant to certain domains.

## **LONGITUDINAL EVIDENCE**

### *Question 3: Does Happiness Precede Success?*

Our review of the cross-sectional literature revealed how extensive and robust are the correlations found between chronic happiness, as well as short-term positive affect, and numerous indicators of culturally valued success, including successful outcomes in work, relationships, and health, as well as characteristics and behaviors paralleling these outcomes. However robust and wide-ranging the correlations we observed, they offer only preliminary evidence that a causal relationship might exist between happiness and success. In the next two sections, we consider the much smaller number of longitudinal studies, which increase our confidence—though not definitively—in the notion that long-term happiness and short-term positive moods might actually cause the outcomes with which they correlate. The relevant study characteristics are presented in the first half of Table 2, and the effect sizes are displayed in Table 2 and in the middle panel of Table 4.

### *Work Life*

#### *Employment and Quality of Work*

Longitudinal studies corroborate the correlational literature linking happiness and desirable work outcomes. For example, people with high subjective well-being who are interviewing for a job are relatively more likely to receive a callback second interview 3 months later (Burger & Caldwell, 2000). A study by Roberts, Caspi, and Moffitt (2003) is instructive regarding the causal direction between happiness and work outcomes because measures of positive affect were collected at age 18 and the work outcomes were assessed at age 26. Positive affectivity at the end of adolescence predicted outcomes such as financial independence, occupational attainment, and work autonomy in young adulthood. However, positive job characteristics also led to increases in positive affect, suggesting a bidirectional influence. Paralleling these findings, in a prospective longitudinal study, employees high in dispositional positive affect had jobs 1.5 years later that allowed them more autonomy, meaning, and variety (Staw et al., 1994). Furthermore, Verkley and Stolk (1989) found that people who were happy were less likely to lose their jobs in the ensuing period. Additionally, unemployed individuals with high subjective well-being were more likely to be reemployed at follow-up than unhappy people. Although the effects of subjective well-being were

small in both directions in this study, they persisted when factors such as length of unemployment and health were statistically controlled.

Once employed, those who show high positive affect on the job receive relatively more favorable evaluations from supervisors—for example, for quality of work, productivity, and dependability—a year and a half later (Staw et al., 1994). Happy people have also been shown to receive higher supervisory ratings over time in other studies (Capanzano & Wright, 1999; Wright & Staw, 1999). For example, happier employees were rated by their administrative officers as superior up to 3.5 years later in the four dimensions of support, work facilitation, goal emphasis, and team building (Wright & Staw, 1999, Study 1). Positive affect on the job has also been found to predict reduced absenteeism 5 months later (Pelled & Xin, 1999). Finally, a construct related to positive affect, dispositional optimism, predicted the success of life insurance agents (Seligman & Schulman, 1986).

### *Income*

Longitudinal and prospective studies of the link between happiness and income are more persuasive regarding causal direction than cross-sectional investigations. For example, in an Australian panel study, young adults who described themselves as happy during a particular period of time were more likely to increase in income during the following period (Marks & Fleming, 1999). Similar results were obtained in a Russian panel study, in which individuals' happiness levels in 1995 were positively correlated with higher income and lower unemployment in 2000, even after controlling for other demographic variables (Graham et al., in press).

Diener and his colleagues related measures of cheerfulness as students entered college to the respondents' income when they were in their 30s (Diener, Nickerson, Lucas, & Sandvik, 2002). Students with greater cheerfulness in the first year of college earned more money 16 years later, and this effect persisted even after controlling for their parents' income. The effect of cheerfulness was strongest for the respondents whose parents were well off. When the parents' income was high (i.e., above \$50,000 U.S.), the most cheerful college students later made \$25,000 more per year than did the least cheerful college students. Furthermore, the cheerful college students were less likely to experience long-term unemployment after college. Corroborating these results, in a study of working adults, employees who were high in dispositional positive affect received greater pay increases over time than those low in positive affect (Staw et al., 1994). These data suggest that high subjective well-being leads to later financial prosperity.

### *Social Relationships*

#### *Friendship, Social Support, and Marriage*

While a number of longitudinal studies have examined marriage, we are aware of only one longitudinal investigation relevant to social support. In the workplace, employees who showed high dispositional positive affect received more emotional and tangible assistance more than a year later (Staw et al., 1994). This study suggests that happy people may draw others to help and befriend them.

As described earlier, numerous cross-sectional investigations have documented a link between happiness and the state of being married. However, the most powerful evidence for the argument that happiness leads to marriage, as opposed to the reverse, comes from several longitudinal investigations (Lucas, Clark, Georgellis, & Diener, 2003; Marks & Fleming, 1999; Spanier & Furstenberg, 1982; see also Neyer & Asendorpf, 2001). Marks and Fleming (1999) conducted a longitudinal study with four cohorts of nationally representative young Australians, who participated every 1 to 2 years over the course of a total of up to 15 years. Unmarried respondents who were one standard deviation above the mean on happiness were 1.5 times more likely to be married at a later time period than those with mean levels of happiness. Unmarried respondents two standard deviations above the mean on happiness were twice as likely to be married later. A 16-year panel study carried out in Germany corroborated these results (Lucas et al., 2003). German men and women who were highly satisfied with their lives were more likely to get married 4 or more years later than those who were initially less satisfied. Finally, U.S. women who expressed sincere positive affect in their college yearbook photos at age 21 were relatively more likely to be married by age 27 and less likely to remain single through middle adulthood (Harker & Keltner, 2001).

Longitudinal investigations also bolster the cross-sectional findings regarding relationship satisfaction, suggesting that individual happiness may bolster marital well-being (Headey et al., 1991; Headey & Veenhoven, 1989; Ruvolo, 1998; Spanier & Furstenberg, 1982). For example, in a 6-year, four-panel study of Australians, participants' individual happiness at earlier time periods increased the likelihood that they would have a happy marriage at later time periods (Headey & Veenhoven, 1989). Furthermore, in a 2.5-year prospective study, Spanier and Furstenberg (1982) found that happier people were more likely to remarry after a divorce. An even longer term result was reported in the previously mentioned study of women's college yearbook photos (Harker & Keltner, 2001). The amount of positive affect expressed in these photos at age 21 predicted marital satisfaction 31 years later.<sup>2</sup> Finally, an intriguing finding is that people's global happiness at one point in time can potentially influence the marital well-being of their spouses a year later (Ruvolo, 1998).

Self-esteem has also been related to relationship quality in longitudinal research. For example, German adults, ages 18 to 30 years, reported on several characteristics of their social relationships at two time periods (Neyer & Asendorpf, 2001). Respondents' levels of self-esteem at Time 1 predicted, over the course of four years, increases in the closeness and importance of their social relationships (especially those with friends and colleagues) and decreases in the feelings of security and amount of conflict participants had in their relationships.

<sup>2</sup> These conclusions must be tempered in light of a meta-analysis by Karney and Bradbury (1995). In their review of 115 longitudinal studies of marital stability and satisfaction, extraversion was found to have a weak negative relationship to marital stability (average  $r = -.04$  for wives,  $-.08$  for husbands, and  $-.08$  for couples). However, these results were based on 1 or 2 studies and the measures of extraversion used were not specified.

### *Why Might Happier People Reap Larger Social Rewards?*

Both the cross-sectional evidence and the longitudinal evidence we have reviewed thus far strongly suggest that happy people are better able to develop social relationships and build a rich network of support. To quote Wilson's (1967) oft-cited review of the literature on well-being, "Perhaps the most impressive single finding lies in the relation between happiness and successful involvement with people" (p. 304). Furthermore, the social rewards of happiness cannot be overstated, as strong social bonds and social support have been shown to further elevate positive emotions and enhance social acceptance, health, and emotional adjustment (Argyle & Martin, 1991; Cohen, 1988; House, Landis, & Umberson, 1988; Myers, 1992) and, as some writers have suggested, even to aid human survival (Berscheid, 2003; Myers, 1999).

We submit that the primary mechanism underlying the relation between long-term happiness and the quality and quantity of social relationships is the experience of frequent positive emotions. A growing body of research suggests that happy feelings have a marked positive influence on interpersonal behavior (Isen, 1999). People are more likely to want to become friends with and to provide emotional and tangible assistance to individuals with a positive outlook (Salovey, Rothman, Detweiler, & Steward, 2000). For example, an observational study of children found that displays of happy affect were most frequently responded to by other kids with empathic behaviors—for example, positive reinforcement and physical or verbal comfort (Strayer, 1980). Befriending and supporting a happy person may evoke positive feelings in the friend or helper, increasing the likelihood that they will seek to maintain the relationship (Staw et al., 1994). In Gottman's work on happy marriages, he has found that the longevity of marriages is best predicted by the ratio of positive versus negative interactions (Gottman & Levenson, 1999).

Furthermore, genuine Duchenne smiles and laughter, which characterize chronically happy people, signal to other people that one is friendly and open to social interaction, inviting them to become engaged (Frijda & Mesquita, 1994; Keltner & Kring, 1998; Ruch, 1993). This argument is supported by theory and research on the role of positive emotions in infant–caregiver interactions. Smiles in infants appear to build infant–caregiver attachment, ensuring that the caregiver will continue to care for the child and secure his or her well-being (Fredrickson, 1998, 2001; Tomkins, 1962). Mothers who express positive emotions have infants who begin to express positive emotions as well (e.g., Haviland & Lelwica, 1987). Indeed, such observations led Eric Fromm (1962) to go so far as to argue that "a mother must not only be a 'good mother,' but also a happy person" (p. 49).

**Mental health.** Although few longitudinal studies address issues of mental health, the existing evidence parallels the cross-sectional data. For example, a longitudinal investigation showed that people who were high in subjective well-being were less likely to suffer depressive symptoms if they became unemployed in the ensuing period (Verkley & Stolk, 1989). Furthermore, in a longitudinal study of the Finnish Twin cohort, life satisfaction was associated with lower risk of work disability that was due to psychiatric causes (as well as nonpsychiatric ones) from 1 to 12 years later (Koivumaa-Honkanen et al., 2004). Within the same sample, subjective well-being was also shown to be negatively associated with suicide. That is, life satisfaction was found to

relate to a lower risk of suicide 20 years later, even after controlling for other risk factors such as substance use, smoking, physical activity, age, and sex (Koivumaa-Honkanen et al., 2001). An additional relevant study concerns substance use, another indicator of poor mental health. In a longitudinal study of more than 1,700 adolescents, positive affect buffered the relation between negative affect and substance use (Wills, Sandy, Shinar, & Yaeger, 1999). Finally, a construct related to well-being—optimistic attribution style—was found to predict mental health problems, poor adjustment, and high levels of drinking 10 years later (Peterson et al., 1998).

**Physical health.** Longitudinal studies are also useful in giving researchers a process picture of the relation between happiness and physical health. For example, in a study of close to 5,000 individuals, happiness was related to relatively better health (as measured by self-reported health problems, days missed that were due to illness, and hospitalization) 5 years later (Graham et al., in press; see also Koivumaa-Honkanen et al., 2004). The experience of positive mood predicted a lower incidence of stroke 6 years later, especially in men (Ostir, Markides, Peek, & Goodwin, 2001), as well as sports-related injuries during the course of hockey season (A. M. Smith, Stuart, Wiese-Bjornstal, & Gunnon, 1997). A related construct—optimism—was also associated with lowered incidence of cardiovascular disease (e.g., heart attacks and angina) 10 years later (Kubzansky, Sparrow, Vokonas, & Kawachi, 2001), with higher quality of life, heightened physical recovery, and quicker return to normal behaviors 6 months following cardiac surgery (Scheier et al., 1989), and with better risk reduction for cardiovascular heart disease 8 months after surgery (Fitzgerald, Prochaska, & Pransky, 2000). Shorter term longitudinal studies mirror these results. For example, low positive affect in adolescents predicted greater delinquent activity 6 months later (Windle, 2000). Furthermore, in two investigations, increasing numbers of positive events were negatively associated with incidence of upper respiratory infection over a 2-week period (Lyons & Chamberlain, 1994). An even shorter term study showed that positive mood assessed on a particular day predicted fewer emergency room and hospital visits on the next day (Gil et al., 2004).

**Longevity and survival.** Is happiness associated with superior longevity and survival? A number of studies—all longitudinal, by definition—have shown that happy people are less likely to die of certain causes. In a study of more than 37 nations, subjective well-being was negatively related to automobile fatalities (Kirkcaldy & Furnham, 2000). A recent study of Scandinavians found that over a 19-year period, dissatisfaction with life predicted fatal unintentional injuries as well as intentional injuries (Koivumaa-Honkanen, Honkanen, Koskenvuo, Viinamaeki, & Kaprio, 2002). Research on the influence of emotions on longevity has primarily stressed the role of negative emotions in decreasing survival times (e.g., Denollet & Brutsaert, 1998; Naughton et al., 2002). However, studies have also demonstrated longer survival times, after an illness, for people with positive emotional traits. Individuals experiencing end-stage renal disease who scored highly on overall happiness were more likely to survive 4 years later (Devins, Mann, Mandin, & Leonard, 1990), women experiencing a recurrence of breast cancer who reported joy were more likely to survive 7 years later (S. M. Levy, Lee, Bagley, & Lippman, 1988), and those individuals with spinal cord injuries reporting greater satisfaction with their lives were more likely to survive 11 years later (Krause,

Sternberg, Lottes, & Maides, 1997). Additionally, a longitudinal study using a sample of 513 Berlin residents revealed a significant link between well-being and all-cause mortality (Maier & Smith, 1999). Because happiness is associated with a variety of life outcomes related to survival (e.g., stable relationships, lower accident and suicide rates, superior coping, and less stress; Baum & Polusny, 1999; House et al., 1988), it would not be surprising if sustained levels of positive affect should relate to overall longevity. A few large-scale prospective studies have examined the link between positive traits and longevity. Levy and colleagues examined attitudes about aging in older adults (B. R. Levy, Slade, Kunkel, & Kasl, 2002). Individuals with positive self-perceptions of aging lived on average 7.5 years longer than those with less positive perceptions, even after controlling for age, sex, socioeconomic status, loneliness, and functional health. Notably, the effect for positive aging attitudes surpassed the effects for body mass, smoking, and exercise. In a study of older individuals, 12% died over the course of 2 years, but those rated as happy were significantly less likely to die than those rated as unhappy (Zuckerman, Kasl, & Ostfeld, 1984; see also Pitkala, Laakonen, Strandberg, & Tilvis, 2004). Palmore (1969) investigated predictors of longevity in a sample of 268 older adults. To control for age effects, the author examined the number of years a person had survived compared with the number of years he or she would be expected to live. This "longevity quotient" was correlated .26 with interviewer-assessed happiness. Of importance, the objective happiness rating was the second strongest predictor of longevity—weaker than work satisfaction, but stronger than physical functioning and tobacco use. Corroborating these findings for the link between happiness and longevity, Deeg and van Zonneveld (1989) showed that a 70-year-old man of average health is expected to live 20 months longer if he reports being satisfied with his life one standard deviation higher than his peers. Danner and his colleagues (2001) examined predictors of longevity in a large longitudinal sample of Roman Catholic nuns. Higher levels of positive emotion expressed in autobiographies written at an average age of 22 were associated with a 2.5-fold difference in risk of mortality when the nuns were in their 80s and 90s. These results are impressive given that the environments of these nuns are expected to be quite similar throughout their lives, and that other health relevant variables, such as diet and activity levels, might be assumed to be relatively homogeneous in this sample. In a study of 2,000 older Mexican Americans (Ostir, Markides, Black, & Goodwin, 2000), positive emotionality significantly predicted survival 2 years later, even after controlling for such variables as marital status, diet, smoking, and negative affect. Finally, it is notable that studies examining optimism parallel these results. For example, optimism was associated with lower risk of death for 800 patients followed for 30 years (Maruta et al., 2000; see also Peterson et al., 1998), and men with an optimistic explanatory style were less likely to die of coronary heart disease 10 years later (Kubzansky et al., 2001). In contrast to these recent studies, the well-known Terman Study of gifted individuals found that a childhood measure of cheerfulness (rated by parents and teachers) was associated with earlier death (Friedman et al., 1993). However, the sample used in this study showed little variability in happiness—most were extremely happy. Thus, the results might reflect the fact that above some high level, happiness might not be adaptive. However, this conjecture is obviously speculative. As it stands, we are uncertain why the

results of the Terman Study diverge from other findings in this area.

### *Conclusion*

In summary, although the longitudinal literature is much less extensive than the correlational work, it is still impressive in the robustness and consistency of its results. Study after study shows that happiness precedes important outcomes and indicators of thriving, including fulfilling and productive work (mean  $r = .24$ ), satisfying relationships (mean  $r = .21$ ), and superior mental and physical health and longevity (mean  $r = .18$ ). However, relatively few longitudinal studies were identified altogether, and none were found in the areas of citizenship and friendship, indicating a clear need for future research. In the next section, we continue our review of the longitudinal literature, examining studies that relate short- and long-term happiness at Time 1 with resources and characteristics paralleling successful outcomes at Time 2.

### **Question 4: Do Happiness and Positive Affect Precede Behaviors Paralleling Success?**

#### *Positive Self-Perceptions*

To our knowledge, the only relevant longitudinal investigations in this area concern the link between life satisfaction and positive affect, respectively, to self-perceptions. The first study indicates that high life satisfaction can lead to feelings of self-confidence. Using a panel design, Headey and Veenhoven (1989) investigated the direction of influence between life satisfaction and feelings of superiority, and found evidence for causality in both directions. That is, feeling above average on a number of characteristics preceded higher life satisfaction, but high life satisfaction was also followed by greater feelings of superiority. The second relevant investigation revealed that women who expressed positive affect at age 21 were relatively more likely to rate themselves high in competence two to three decades later (Harker & Keltner, 2001; mean  $r = .25$ ).

#### *Sociability and Activity*

##### *Sociability and Extraversion*

Longitudinal studies reinforce the cross-sectional findings linking happiness and extraversion, demonstrating that this link holds even when the two variables are measured many months or years apart (Costa & McCrae, 1980; Costa, McCrae, & Norris, 1981; Headey & Wearing, 1989). Longitudinal studies have also shown that levels of positive affect are positively correlated with measures of extraversion and sociability, assessed from 3 months to 10 years apart (Costa & McCrae, 1980; Headey & Wearing, 1989). For example, returning once again to the yearbook study, women who expressed positive affect at age 21 were more likely to describe themselves as high in affiliation many years later—at ages 43 and 52 (Harker & Keltner, 2001).

##### *Social Interaction and Activity*

Corroborating the fairly extensive correlational results, longitudinal studies of older people have shown a significant association

between chronic, global happiness, and participation in a variety of activities 18 months later (Kozma & Stones, 1983; Stones & Kozma, 1986). As another example, in a recent short-term prospective study, happy students were more likely than their less happy peers to adopt over the course of a semester a variety of new goals and activities that "gave them a boost" (Sheldon & Lyubomirsky, in press).

Another study focused on temporary pleasant moods, rather than long-term happiness, as a possible stimulus for engagement in social and recreational activities (Lucas, 2001). In this investigation, positive affect at Time 1 predicted the amount of time participants spent on recreation and on activities with friends and family members at Time 2, even after controlling for Time 1 activity levels.

### *Summary*

As can be seen in Panel 5 of Table 2, reasonably strong evidence exists for the hypothesis that happiness precedes desirable resources and behaviors relevant to sociability and activity, such as extraversion and engagement in activities. The mean effect size ( $r$ ) for these studies is .25.

### *Prosocial Behavior*

In the only relevant longitudinal work we identified, research suggests that altruism may follow from happiness, as well as the reverse. Thoits and Hewitt (2001) showed that the causal connection between volunteer work and subjective well-being is bidirectional. Following a large sample over two waves, they found those with high happiness and life satisfaction increased in the hours they spent in volunteer activities over the course of the study. Controlling for other variables, a conservative estimate for the effect size ( $r$ ) is .04. At the same time, those who volunteered more hours increased in happiness.

### *Physical Well-Being and Coping*

#### *Health Perceptions and Healthy Behavior*

We identified only a few relevant longitudinal studies in this area. A daily diary study of sickle cell disease patients found that positive mood during Day 1 was related with lower reported pain during Day 3 (Gil et al., 2004, cited previously). Furthermore, happy people were less likely to drink and smoke 5 years later in a Russian study (Graham et al., in press; see also Peterson et al., 1998) and to describe themselves as healthy in a U.S. study (Stones & Kozma, 1986).

#### *Immunity*

Intriguing short-term longitudinal results were obtained from a recent study that examined immunity indirectly, by assessing susceptibility to illness (Cohen, Doyle, Turner, Alper, & Skoner, 2003). Healthy volunteers were exposed to a rhinovirus and monitored for host resistance to the common cold. Those with a positive emotional style—that is, who typically reported experiencing positive emotions—were relatively less likely to develop a cold, and, important to note, this association was independent of a negative emotional style. Furthermore, typical negative emotional

experience was not associated with colds. Finally, in a study assessing immune function directly, cancer survivors with more uplifts than hassles showed enhanced NK cell activity 18 months later (Vitaliano et al., 1998).

### *Coping*

Research using prospective longitudinal designs has examined coping as a function of traits linked with positive functioning, such as optimism, as well as a function of preexisting positive mood. For example, optimism has been associated with better psychological adjustment after breast cancer diagnosis (Epping-Jordan et al., 1999), with the tendency to cope with breast cancer surgery through active engagement (Carver et al., 1993) and with more problem-focused coping and less denial following open-heart surgery (Scheier et al., 1989). Furthermore, two studies focused on the link between positive mood and coping with potential and actual breast cancer. C. C. Chen and colleagues (1996) found that positive affective responses predicted engaged coping among women who were undergoing biopsy for suspected breast cancer. A study predicting coping and mood following surgery for breast cancer showed that preexisting levels of positive mood predicted the tendency to cope through active engagement (Carver et al., 1993). The effect of positive affect on coping has also been demonstrated in research by Fredrickson and Joiner (2002), who found that experiences of positive emotion at one time period were associated with more effective coping and even greater positive experiences later.

### *Conclusion*

In summary, accumulating research shows that happiness, pleasant moods, and closely related constructs precede indicators of physical well-being and adaptive coping (mean  $r = .27$ ; see Panel 7 of Table 2).

### *Creativity and Problem Solving*

The vast majority of investigations in this area are experimental and thus are described in the next section. The only longitudinal study we identified was conducted by Staw and his colleagues (2004), who found that positive affect expressed on the job by employees predicted their supervisor's evaluation of the employees' creativity a year and a half later ( $r = .31$ ).

### *Conclusion*

The longitudinal literature is undoubtedly sparser than the cross-sectional work. We were able to identify few relevant longitudinal studies in several areas and none at all examining the topics of perceptions of other people, enjoyment of social activities and interactions, likability, negotiation and conflict resolution, and performance of complex mental tasks. Despite the scarcity of relevant studies, every single investigation we found corroborated the correlational findings in the direction predicted by our model. That is, both long-term happiness and short-term pleasant moods tend to precede the desirable characteristics, resources, and behaviors with which they are correlated. Clearly, longitudinal research should be a high priority for the future. Fortunately, many relevant experimental studies exist, which offer an even stronger test of our

causal hypothesis regarding happiness and success. In the next section, we document the fairly large and growing literature examining the effects of induced pleasant affect—the hallmark of long-term happiness—on behaviors, resources, and skills paralleling culturally defined success. In short, this evidence addresses the critical question of whether positive affect causes the adaptive characteristics that help happy people thrive.

## EXPERIMENTAL EVIDENCE

### Question 5: Does Positive Affect Lead to Behaviors Paralleling Success?

#### *Positive Perceptions of Self and Others*

##### *Self-Perceptions*

Experimental work on induced positive moods suggests that positive emotions have a causal influence on positive self-feelings. For example, students induced into experiencing a positive mood thereafter describe themselves in more positive terms (Sarason, Potter, & Sarason, 1986), assess their task performance as superior (Barsade, 2002), report more favorable global self-evaluations, and recall more positive experiences and successes from their past (M. S. Clark & Waddell, 1983; Wright & Mischel, 1982). Happy moods also appear to increase feelings of self-efficacy. Those put in a good mood report higher self-efficacy (Baron, 1990; Samson & Rachman, 1989; Schuettler & Kiviniemi, *in press*) and set higher goals for themselves (Baron, 1990; Hom & Arbuckle, 1988). Induced positive moods also lead people to expect more success on laboratory tasks (Brown, 1984; Wright & Mischel, 1982). Finally, positive mood leads individuals to attribute their successes to stable factors within themselves (Brown, 1984). Thus, the evidence indicates that positive affect makes people feel good about themselves.

##### *Perceptions, Memories, and Judgments of Others*

A review of the experimental literature suggests that short-term positive affect triggers not only positive feelings about oneself, but also promotes greater liking and fondness for others. Experimental studies show that individuals induced to feel happy are more likely than those induced to feel sad to express liking for a stranger (Baron, 1987, 1993; Griffitt, 1970). For example, in one set of studies, students were asked to conduct a simulated job interview. After the interview, those who had been previously induced into a positive mood rated the applicant higher on a number of job-related and personal dimensions and were more likely to “hire” him or her than those induced into a negative mood (Baron, 1987, 1993; see also Baron, Rea, & Daniels, 1992). Happy moods have also been found to be associated with recollections of positive information about a particular person (Baron, 1987).

#### *Sociability and Activity*

In this section, we consider the literature on sociability, activity, and energy, to determine whether happy moods prompt more frequent, more enjoyable, and higher quality social activities and interpersonal interactions.

#### *Sociability and Extraversion*

Laboratory studies in which positive moods have been induced support the causal direction from positive affect to sociability (Isen, 1999). In seminal research in this area, Isen (1970) found that participants induced into a positive mood were more sociable with a confederate—for example, more likely to initiate conversation with her and be more attentive (see also McMillen, Sanders, & Solomon, 1977). Almost 20 years later, a very similar study found analogous results (Cunningham, 1988b). When left alone with a female peer, male participants induced to feel happy were more likely to engage in social interaction and self-disclosed more to her than those induced to feel sad. Cunningham (1988b) suggested that the positive affect may have increased the men’s feelings of energy for engaging in a social interaction and raised their expectations for rewards from the communication. In another study, participants who had been induced into a pleasant mood reported that they would choose to engage in social activities if they feel happy (Cunningham, 1988a). In summary, these studies support the notion that positive moods have beneficial social consequences. When feeling happy, people tend to seek out social interactions, in part because they are likely to view such interactions as rich and rewarding (Schaller & Cialdini, 1990).

#### *Social Interaction, Activity, and Energy*

Evidence supporting the argument that positive affect promotes activity, as opposed to the reverse, comes from a well-cited experimental study (Cunningham, 1988a). Students who were induced to feel happy, relative to those induced to feel neutral or sad, showed greater interest in leisure activities (e.g., eating good meals, planning a trip or vacation, or going to a party or a sporting event, rock climbing, and shopping; Cunningham, 1988a). Thus, one of the benefits of positive affect is that it appears to boost activity, energy, and involvement in active leisure.

#### *Enjoyment of Activities and Social Interactions*

When experiencing a pleasant mood, people are more likely, rather than less, to enjoy their activities and social interactions and to derive more satisfaction from them. Laboratory studies have shown that induced happy moods lead participants to derive greater enjoyment from whatever task they are instructed to perform. For example, individuals in an induced positive mood are more likely to enjoy category-sorting tasks (Hirt, Melton, McDonald, & Harackiewicz, 1996; Murray, Sujan, Hirt, & Sujan, 1990), and groups put in a positive mood are more likely to take pleasure in a group negotiation task (Carnevale & Isen, 1986).

#### *Summary*

In summary, transient happy moods appear to lead people to seek out others and to engage with the environment at large, to be more venturesome, more open, and more sensitive to other individuals (Veenhoven, 1988). Supporting this thesis, temporary elation has been associated with greater perceived relationship closeness and self–other overlap (Waugh & Fredrickson, 2003; see also Kashdan & Roberts, 2004); increased activity and physical arousal (Schaller & Cialdini, 1990); as well as excited, affectionate, and affiliative feelings (Lucas, 2001; Watson, 1988). Additionally,

positive mood is related to higher levels of energy (Lehr, 1982). Watson (2000) reviewed evidence showing that both positive affect and feeling lively and energetic are aspects of extraversion. Indeed, feeling active is so highly correlated with positive affect that Watson and colleagues used it as one marker for positive emotions on their affect measure, the widely used Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).

### *Negotiation and Conflict Resolution*

The experimental evidence supports the argument that pleasant moods boost people's abilities at resolving conflict. In one study, those with induced positive affect showed a decreased preference for resolving conflict through avoidance and an increased inclination for reducing conflict through collaboration (Baron, Fortin, Frei, Hauver, & Shack, 1990). Similarly, participants with induced positive mood were found to make more concessions during face-to-face negotiations, and to have a weaker preference for handling future conflicts with avoidance and competition (Baron, 1990; see also Baron et al., 1992). In the same study, those put in a positive mood were more likely to solve conflicts through collaboration, and were more likely to offer help to others. Finally,Forgas (1998) found that an induced positive mood had a beneficial influence on bargaining across a variety of negotiation tasks, with individuals in pleasant moods revealing a marked penchant to be more cooperative and less competitive (see also Barsade, 2002). Similar results have been obtained when investigating groups. Carnevale and Isen (1986) found that a group put in a positive mood was more likely to reach an optimal agreement and less likely to break off negotiation and to use aggressive tactics.

### *Prosocial Behavior*

In reviewing the experimental research on mood and prosocial behavior, we address the question of whether the experience of pleasant moods stimulates people to be more altruistic, generous, and charitable people.

Numerous experimental studies have found that happy moods increase the likelihood and amount of helping. Indeed, this effect is one of the most robust findings in the literature on positive mood and social behavior, having been variously called the "feel good, do good" phenomenon, the "glow of goodwill," and the "warm glow of success." Both the inductions of positive mood and the assessments of helping have taken numerous forms in these studies. For example, happy moods, in comparison with sad or neutral moods, have promoted such behaviors as contributing money to charity (Cunningham, Steinberg, & Grev, 1980; Isen, 1970) or to needy children (Rosenhan, Underwood, & Moore, 1974), donating blood (O'Malley & Andrews, 1983), and volunteering for an extra experiment (Aderman, 1972; Baron & Bronfen, 1994; Baron et al., 1992; Berkowitz, 1987; Isen & Levin, 1972; Rosenhan, Salovey, & Hargis, 1981).

In summary, the extensive experimental evidence indicates that positive affect fosters helping behavior. However, what about negative affect? Of interest, negative moods such as sadness or guilt have also been shown to promote helping—for example, when the helping promises to improve mood (e.g., Manucia, Baumann, & Cialdini, 1984), when the person in need calls atten-

tion to his or her plight (McMillen et al., 1977), when the negative mood does not lead to self-preoccupation (Kidd & Marshall, 1982), or when individuals feel they have harmed someone (Salovey, Mayer, & Rosenhan, 1991). Thus, researchers have argued that positive moods lead to helping under the majority of circumstances, whereas negative moods lead to helping only under certain conditions—namely, when the rewards of helping are high and the costs are low (e.g., Cunningham, Shaffer, Barbee, Wolff, & Kelley, 1990). In contrast, there appear to be multiple reasons that positive affect fosters helping (Carlson, Charlin, & Miller, 1988).

The research evidence consistently shows that happy moods lead to increased helping. What are the mechanisms underlying this effect? Considerable theoretical discussion has focused on this question (e.g., Batson, 1990; M. S. Clark & Isen, 1982; Salovey & Rosenhan, 1989; Schroeder, Penner, Dovidio, & Piliavin, 1995), and a variety of hypotheses have been advanced. The most persuasive evidence supports the view that happy moods lead to helping through increases in positive thoughts and more favorable judgments of others—for example, by increasing liking for other people (Baron, 1987, 1993; Griffitt, 1970) and enhancing one's sense of advantageous resources and good fortune that should be shared equitably with others (Aderman, 1972). Furthermore, individuals in pleasant moods may expect that helpfulness will evoke gratitude and appreciation—that is, they anticipate positive outcomes and rewards of helping, as opposed to the potential costs (M. S. Clark & Waddell, 1983; Cunningham, 1988a). In addition, people in a happy mood may be more likely to recall the positive aspects of their past helping experiences (M. S. Clark & Isen, 1982, 1983) and to view themselves as more generous people, as well as to feel more confident, efficacious, resource laden, in control, and optimistic about their ability to help (M. S. Clark & Isen, 1982; Cunningham, 1988a; Taylor & Brown, 1988).

In summary, the sizable experimental literature on helping offers persuasive evidence suggesting that positive affect heightens generosity and helpfulness. Moreover, because this research primarily comprises studies involving experimental inductions of mood, the causal direction is generally known. That is, although helping undoubtedly elevates mood, we can be confident that pleasant moods also foster helping.

### *Physical Well-Being and Coping*

#### *Health Perceptions*

Although the experimental literature in the area of health perception is scarce, the results are intriguing. For example, individuals induced into a happy mood have shown relatively higher pain thresholds (Alden, Dale, & DeGood, 2001; Cogan, Cogan, Waltz, & McCue, 1987) and lower blood pressure reactivity to a stressful task (T. W. Smith, Ruiz, & Uchino, 2004). Happy moods may also promote health by boosting self-efficacy, optimism, and efforts to battle illness. Participants who imagined being diagnosed with kidney cancer and then induced into a pleasant mood reported greater ability in managing the illness, more optimism about their prognosis, and stronger intentions to follow the treatment regimen and exert effort to overcome the illness than those induced into a negative mood (Schuettler & Kiviniemi, in press, also cited earlier).

### *Healthy Behavior*

An intriguing line of research suggests that positive moods might help people exert willpower and self-control over unhealthy or harmful urges and addictions. For example, Tice and Wallace (2000) showed that inducing positive mood replenishes the depleted ego, allowing individuals to demonstrate will power once again after it has been worn down by temptation. This finding is consistent with a correlational study of smoking cessation, which found positive affect to be negatively associated with urges to smoke in those withdrawing from smoking (Zinser, Baker, Sherman, & Cannon, 1992).

### *Immunity*

Research on induced mood and immune activity provides some support for a causal relation between positive moods and immune function. For example, in several investigations, participants who had watched a humorous videotape showed increased levels of immunity (Dillon et al., 1985; Lefcourt, Davidson-Katz, & Kueneman, 1990; McClelland & Cherrif, 1997; however, see Martin, 2002, for a critique of these data). Furthermore, in a small sample of trained actors, induced positive and negative mood were found to be related inversely to changes in immune function (Futterman, Kemeny, Shapiro, & Fahey, 1994). That is, level of proliferative response to phytohaemagglutinin antigen, a marker of immune function, increased in response to positive mood and decreased in response to negative mood (see also Solomon, Segerstrom, Grohr, Kemeny, & Fahey, 1997).

### *Creativity and Problem Solving*

#### *Flexibility and Originality*

Does a happy mood prompt a person to be more original and more flexible in his or her thinking? Many investigators, led by Isen and her colleagues, have shown that laboratory inductions of positive affect lead to elevated scores of originality and flexibility, often labeled *creativity* in these studies. The manipulations used to induce positive moods have been diverse, and several different types of assessments of flexible and original thinking have been used (e.g., Estrada, Isen, & Young, 1994; Hirt et al., 1996; Isen, Johnson, Mertz, & Robinson, 1985; Sinclair & Mark, 1995). It should be noted that, occasionally, people in a sad mood are also more original than those in a neutral mood (Adaman & Blaney, 1995). However, in most studies, it is the positive group that shows the most original responses. Isen (1993) reviewed the extensive evidence linking induced positive affect to creativity on laboratory measures and concluded that there is little doubt that induced positive affect, compared with neutral affect, heightens performance on the laboratory tasks.

In conclusion, the laboratory findings on induced positive moods suggest that pleasant emotions enhance performance on simple measures of flexible thinking and originality. What are the mechanisms by which positive affect leads to creativity? The association might be due to the fact that positive moods make the person feel safe and secure, and, therefore, lead him or her to think in more divergent ways without feeling threatened—in other words, to be more playful (Fredrickson, 1998, 2001). Kahn and Isen (1993) found that individuals put in a good mood sought more

variety in their choices, suggesting the role of feeling secure and wanting to try new things as a causal mechanism for the effects of positive affect on creativity.

#### *Performance on Complex Mental Tasks*

The data reviewed previously persuasively suggests that positive affect enhances creativity. Does positive affect also boost performance on complex mental tasks? The experimental evidence regarding this question is rather mixed. One body of evidence indicates that positive affect might be detrimental to accurate judgments and logical, rational decision making. Early research on affect and judgment suggested that people in a positive mood might perform more poorly, compared with those in neutral or sad moods, at decision and judgment tasks. Those induced to feel positive affect have been shown, for example, to do worse at logic problems (Melton, 1995) and to be less likely to differentiate strong from weak arguments in a counterattitudinal essay paradigm (Mackie & Worth, 1989). In contrast, individuals induced to be in a sad mood are more likely to value the quality of arguments over the source (Bless, Bohner, Schwarz, & Strack, 1990), less likely to rely on stereotypes (Edwards & Weary, 1993), and more likely to carefully execute all steps in a highly structured task (Elsbach & Barr, 1999). Furthermore, the literature on depression suggests that people in normal moods, as compared with dysphoric people, are often more likely to overestimate their degree of control (Alloy & Abramson, 1979). However, it should be noted that tests of the depressive realism hypothesis have yielded mixed results, with about as many studies inconsistent with the idea as there are supporting it, depending on the outcome measured (e.g., Dobson & Pusch, 1995; see Ackermann & DeRubeis, 1991, for a review).

Other studies, however, have shown that those put in a pleasant mood outperform others. For example, people in a positive mood made faster and more efficient decisions regarding a personally relevant task (Forgas, 1989), performed better on a clerical error-checking task (Jundt & Hinsz, 2001), solved more anagrams correctly (Erez & Isen, 2002), and considered the correct diagnosis of a disease earlier (Estrada, Isen, & Young, 1997). The results of other studies also suggested more efficient processing—that is, participants placed in a positive mood were less likely to review information they had already seen, were more likely to ignore information judged as unimportant (Isen & Means, 1983) and to adopt an efficient strategy for performing a clerical coding task (Baron, 1990), and showed less anchoring when making a diagnosis (Estrada et al., 1997). In addition, the respondents high in positive affect tended to eliminate alternatives that did not meet a minimum cutoff on important dimensions, a more efficient strategy. People in induced happy moods also appear to persist longer at tasks in which perseverance is required (Erez & Isen, 2002; Kavanagh, 1987). Finally, people in a good mood have been shown to make more inclusive group representations, defining others as part of their in-group (Dovidio, Gaertner, Isen, & Lawrence, 1995; Isen & Daubman, 1984) and using a broader definition of group membership (Urada & Miller, 2000). Thus, individuals in a happy mood are more likely to use stereotypes, but they are also more likely to include more diverse people within their groups.

Complicating the picture, another body of evidence suggests that, although individuals in a sad mood often perform well at simple analytical tasks, they are not immune to errors. For example, sadness can open the decision maker to greater anchoring effects (Bodenhausen, Gabriel, & Lineberger, 2000), because greater analytical processing can make the anchor more salient. Indeed, Staw and Barsade (1993) concluded that the evidence on decision making and mood supports the happier-and-smarter effect rather than the sadder-but-wiser hypothesis.

*Heuristic versus analytical processing.* Based on the research reviewed previously, it appears that sometimes the performance of people in positive moods is superior, sometimes equal to, and at other times inferior to mildly depressed people and those in a negative mood. How can we make sense of this seemingly contradictory evidence? One conclusion is that the experience of positive affect is not beneficial—and perhaps harmful—when one is engaged in mental tasks. Another response to the mixed evidence is to try to determine in which situations people in a happy mood do better at judgment and decision problems and in which situations they do worse. In recent years, a perspective has emerged that people in positive moods interpret their affect as signifying that events are going well. Thus, they are quicker to make decisions and are likely to use general heuristic answers learned in the past. After all, if all is well, then past successful answers are likely to work. Thus, the person in a positive mood is likely to rely on preexisting general knowledge structures (Bless et al., 1996) that have previously succeeded, because the situation is seen as predictable and safe. In contrast, people in negative moods are likely to process problems analytically and vigilantly.

Heuristic shortcuts can be likened to mental habits, which allow for less effortful processing. Because heuristic answers are efficient when they are appropriate to the task, people in happy moods can solve complex tasks better and faster, thus freeing cognitive capacity for other challenges. At the same time, when researchers present respondents with analytical tasks for which past heuristics are not suitable, the performance of sad participants is likely to be superior, especially when no task performance feedback is involved. Because sad individuals are more likely to use effortful and detailed processing for every task, they will do better at problems for which past learning is not particularly helpful. However, the effortful processing of sad people will not be desirable for complex tasks on which efficient strategies learned in the past can be used. For instance, Isen and Means (1983) found that people induced to feel happy were better at performing a complex mental task—namely, eliminating unimportant information and discovering useful heuristics to help solve a difficult problem. Sad individuals, in contrast, are more likely to ignore heuristic shortcuts and to use effortful, vigilant processing even when it is not required, and therefore perform poorly in complex and time-limited situations (Gleicher & Weary, 1991). For example, in a recent study, sad participants displayed reduced accuracy of social judgments based on thin slices of nonverbal behavior (Ambady & Gray, 2002). The authors showed that sadness impaired accuracy by promoting a deliberative style of processing information, which can interfere with a person's ability to understand others.

Notably, happy moods can produce good performance even on complex and novel tasks, but only when cues are present to indicate that the situation is important and that care is required. That is, because positive affect signals that all is well in the

situation, when novel problems are encountered, individuals in a pleasant mood require information indicating that they need to exert additional effort, to consider new and careful strategies, and not to rely on preexisting mental structures. As Schwarz (1990) noted, people in good moods see little need to expend effort unless it is necessitated by currently active goals. However, cues about motivation, an explicit goal to be accurate, or the negative affect that is engendered by initial failures at the task can all motivate the happy person to engage in more effortful processing when it is needed. Thus, when the situation calls for it, a person in a positive mood is capable of slowing down and analytically thinking through a problem in a more careful and deliberate way. For example, people placed in a positive mood overcame their stereotypes if they learned they would be held accountable for their decisions (Bodenhausen, Kramer, & Süsser, 1994).

A number of studies support this argument. For example, research participants who are put into a good mood seem to make riskier judgments if nothing is at stake, but make more conservative bets when real losses are possible (see Isen, 2000, for a review). Aspinwall (1998) reviewed evidence suggesting that people in a positive mood do not ignore negative information if it is important and self-relevant. She hypothesized that happy people will use heuristics in many laboratory tasks that appear to be unimportant, but will use more systematic processing when the task is important and self-relevant (e.g.,Forgas, 1989). For example, those put in a positive mood were less likely than those in a control condition to ignore self-relevant medical information about their risky health behaviors, and were better able to recall the risk information at follow-up (Reed & Aspinwall, 1998). In another study involving an important, self-relevant situation, students who had undergone a positive experience were more open to receiving feedback regarding their liabilities in reaching their life goals and their careers, whereas those undergoing a negative experience showed greater interest in hearing about their assets (Trope & Pomerantz, 1998). These results indicate that, in a situation in which people's weaknesses are related to important life goals, having a positive experience can lower ego defensiveness and make people more open to learning about their weaknesses.

Further support of the notion that happy moods can instigate careful processing, but only when appropriate cues are present, comes from research showing that people in a good mood will do better if the task is more ecologically valid. For example, in one study, depressed respondents made relatively less realistic predictions about future events in their own lives in the upcoming semester (Dunning & Story, 1991). That is, depressed participants were less accurate in their predictions, and more overconfident than nondepressed individuals, when predictions were of future events in their own lives rather than predictions of laboratory stimuli (for mixed evidence, however, see Shrauger, Mariano, & Walter, 1998). Supporting the argument that positive affect is likely to be helpful in natural settings, several researchers have concluded that depressive realism is found in trivial, artificial laboratory tasks (Dobson & Franche, 1989; Pacini, Muir, & Epstein, 1998). The authors argued that dysphoric individuals use excessive rational control even in trivial situations, leading to their superior performance in certain inconsequential laboratory tasks, but that nondysphoric individuals perform more optimally in consequential contexts. Corroborating this conclusion, people in an induced positive mood were found to take more risks when the

stakes were low, but to be more risk averse when the stakes were high (Isen & Geva, 1987; for similar findings, see Isen & Patrick, 1983; Leith & Baumeister, 1996).

**Summary.** In conclusion, happy moods are not a panacea when it comes to solving problems or tackling laboratory tasks. Happy people's reliance on simple heuristics is a handicap if they are attempting a novel task for which previous knowledge is not useful. On the other hand, their more frequent use of mental shortcuts allows them to allocate additional resources to secondary tasks, thus, permitting them to use their time and resources more efficiently and to perform well at complex problems (Isen, 2000). Furthermore, people in a positive mood are more likely to have richer associations within existing knowledge structures, and thus are likely to be more flexible and original. Those in a good mood will excel either when the task is complex and past learning can be used in a heuristic way to more efficiently solve the task or when creativity and flexibility are required. However, many laboratory activities provide little or no feedback to participants on how they are performing on the task, and, thus, the happy person has no clue in those studies that things are going poorly. In contrast, research suggests that, in everyday, naturalistic situations, a person in a happy mood will quit relying on heuristics when he or she sees that they are not working. In summary, the evidence shows that people experiencing happy moods have potential deficits when it comes to problem solving, but they can overcome these deficits if they are motivated to perform well at the task.

## CONCLUSION

To sum up then, we return to our initial question: Does positive affect promote positive, favorable characteristics? Our review of the relevant experimental literature reveals compelling evidence that positive affect fosters the following resources, skills, and behaviors: sociability and activity (mean  $r = .51$ ), altruism (mean  $r = .43$ ), liking of self and others (mean  $r = .36$ ), strong bodies and immune systems (mean  $r = .38$ ), and effective conflict resolution skills (mean  $r = .33$ ). The evidence is weaker, but still consistent, that pleasant moods promote original thinking (mean  $r = .25$ ). It is fair to say that the evidence is almost nonexistent regarding whether individuals induced to experience happy moods also have superior coping abilities, greater popularity, and healthier behavior. Finally, positive affect sometimes leads to poor problem solving and sometimes to more efficient solving of complex tasks, depending on the situation. It is intriguing, however, that despite the presence of some contradictory results, the mean effect size for performance on complex mental tasks is .25.

### Summarizing the Evidence

In this article, we set out to document three classes of evidence to test our conceptual model, positing that happiness, or the long-term propensity to experience frequent positive emotions, promotes culturally valued success and thriving (see Figure 1). To this end, we documented the cross-sectional, longitudinal, and experimental literature examining happiness and positive affect and their associations with successful outcomes, as well as with behaviors paralleling success. Although our review revealed gaps in the existing research, it also highlighted the robustness and wide range of the relationships that were observed. First, as indicated by

the consistently strong average effect sizes, we discovered a vast number of correlational studies showing positive associations between happiness and successful outcomes within all of the major life domains (i.e., work, love, health). Second, cross-sectional work indicated copious positive relations of happiness and positive affect with an array of desirable attributes, propensities, and behaviors (e.g., positive perceptions of self and other, sociability, prosocial behavior, likability, creativity, and coping, among others).

Third, although the longitudinal literature was found to be quite limited—especially when compared with the cross-sectional body of evidence—it was persuasive in showing that many of the correlations we had documented were replicated within the temporal sequence predicted by our model. That is, a number of studies demonstrated that (a) long-term happiness precedes the successful outcomes with which it correlates and (b) both long-term happiness and short-term positive affect precede the desirable resources and characteristics with which they are related.

Finally, and perhaps most important, a sizable experimental literature offered strong evidence that short-term positive affect—the hallmark of a happy person—causes a range of behaviors paralleling success. These data suggest that positive affect may very well be the critical mediator underlying the relationship between happiness and culturally valued success. In summary, although many researchers presuppose that happiness follows from successes and accomplishments in life, our review provides strong, albeit not conclusive, evidence that happiness may, in many cases, lead to successful outcomes, rather than merely following from them.

### Questions, Caveats, and Future Research

The evidence presented here highlights the functional benefits of positive affect and chronic happiness. It would be absurd, however, to suggest that chronic happiness is necessary for all forms of success and thriving. Plenty of exceptions are in evidence. The conclusion we draw is much more modest—that positive affect is one strength among several that can help achieve approach-oriented success. Certainly other resources, such as intelligence, family connections, expert skill, and physical fitness, can also figure prominently in success. In this section, we discuss questions arising from our preliminary conceptual framework, bring up several potential limitations and empirical issues, and outline the important empirical research that is needed to address the remaining issues.

#### *Methodological and Generalizability Issues*

##### *Experimental and Longitudinal Designs*

More experimental and longitudinal research is needed in a number of areas to fill the gaps in our review and to provide a stronger test of our conceptual model. For example, although a substantial amount of experimental research has been conducted in the areas of creativity and altruism, less experimentation exists on the effects of positive affect on likability, coping, and health. Furthermore, few or no longitudinal studies exist in many areas, including friendship, judgments of others, organizational citizenship, negotiation, and performance of mental tasks. Longitudinal

research is also essential to confirm that positive affect predicts success even after controlling for earlier levels of resources and success. Cross-sectional studies, in which outcomes are simply correlated with happiness, might produce spurious findings that are due to the causality running from the variable to happiness or the presence of third variables. For this reason, it is important to consider longitudinal studies that examine the effects of happiness on outcomes while controlling for happiness at Time 1 or for potential third variables at Time 1. For example, baseline health might be controlled in a study of the effects of happiness on longevity. Although this procedure has not always been followed in the studies we review, and represents a serious limitation of some investigations, it should be a high priority for future research.

Finally, the existing evidence for a causal link between positive affect and behaviors that lead to success currently comes from short-term laboratory studies (Type C evidence in Figure 1). If these same behaviors are also increased by long-term interventions to enhance global happiness and happy moods (e.g., through self-help, therapy, or drug treatment)—that is, collect evidence of Type D—the case for happiness being causally related to success will be strengthened even more.

### *Reporting Biases*

A good portion of the evidence presented in this article involves self-reports, which are prone to the biasing effects of mood. That is, an individual in a happy mood is likely to rate everything as positive, including herself, her health, her job, her coping abilities, and her marriage. Such potential reporting biases may render some of the reviewed findings to some extent ambiguous. This is undoubtedly a limitation of the evidence. Fortunately, however, many of the outcomes we reviewed are not dependent on global self-reports. Among others, these include mortality data, immune marker levels, income, job supervisor ratings, peer judgments, marital status, and laboratory measures of creativity, task performance, and helping. Furthermore, positive mood biases may sometimes not be artifactual, but, instead, may represent the phenomenon in question. Clearly, more non-self-report measures of key variables are needed in future studies.

### *Assessing Happiness and Positive Affect*

Can we be certain of the validity of the happiness measures used in the literature reviewed here? Recall that our conceptual model rests on a definition of happiness as the frequent experience of positive emotions. In the studies we review, some of the long-term measures assess happiness, others more directly assess the long-term experience of positive affect, and yet others assess what Veenhoven (1984) labeled the “hedonic level of affect” and what Bradburn (1969) called “affect balance”—the experience of positive emotions minus negative emotions. Regarding measures of happiness, Diener and his colleagues (1991) reported that individuals scoring high on such scales do indeed experience frequent positive emotions. Studies using hedonic-level-of-affect measures also provide a test of our model—albeit a less direct one—because positive affect represents half of such scores. Although negative affect is also included in affect balance measures, the outcomes we review (such as sociability) are likely to result from positive affect.

What about measures of positive affect such as the PANAS (Watson et al., 1988), whose items (e.g., excited, active) might be the ingredients leading to success rather than pleasant emotions per se? Although an important topic for future research is dissecting the various types and components of positive emotions, there is reason to believe that positive emotions, not merely its components like energy or arousal, play a causal role. First, experimental manipulations of positive affect produce similar outcomes, and many of these manipulations (e.g., receiving a small gift or listening to soothing music) are unlikely to produce high levels of arousal or activation. Second, measures of less activated forms of positive emotion such as happy or content produce effects that are consistent with those found with the whole PANAS. Thus, positive emotions do appear to be an active ingredient leading to successful outcomes, although researchers need to explore further the augmenting role of arousal/energy and the possibly diverging role of various specific types of positive emotions. For example, high- and low-arousal positive emotions may activate different types of goals and behaviors, such as the goals of influencing versus adjusting to one’s environment, respectively (Tsai, Knutson, & Fung, 2004).

Alternative measures of positive affect that have been included in studies reviewed here include facial expressions of positive emotion and positive emotional language usage. Research using such measures is not susceptible to self-report biases and is relatively free from the conceptual ambiguities that characterize our current understanding of the structure of positive emotion. That studies using these more subtle measures have supported the relations of positive affect to valued life outcomes (and have typically done so longitudinally) strengthens the case for the contribution of positive emotional experience in securing the goods of life.

### *Generalizability*

A critical question is the degree to which the findings presented in this article generalize to other cultures. The majority of the evidence we reviewed comes from Westernized, industrialized nations, where positive emotions are highly valued (e.g., Eid & Diener, 2001). Other cultures, by contrast, give less emphasis to happiness and its pursuit (Lyubomirsky, 1997; Suh, 2000) and hold different definitions of success. It is possible then that the characteristics that follow from positive emotions, such as self-confidence, activity, sociability, and original thought, are more likely to lead to success in some societies than in others. For example, cultures centered around the idea of avoiding bad outcomes rather than approaching good ones may be less likely to reward those who are high in positive affect. Happiness might lead to outcomes that are considered beneficial only in particular types of societies that happen to be where most research to date has been conducted. Alternatively, the relation between positive affect and success behaviors may also be universal across cultures or may be nearly universal in resource-rich societies. Furthermore, perhaps all cultures value the three domains of success we posit—work life, social relationships, and health—but they prioritize them differently. Thus, an important objective for future research is to collect cross-cultural data so that the limiting conditions of our framework can be understood.

### *Situational Specificity*

Although we found consistent effects for happiness across all three classes of evidence, there was significant heterogeneity across studies in a number of areas, suggesting the need for future research to explore moderators of the effects of happiness and positive affect. For example, although Diener and colleagues (2002) found that happier college students earned more income many years after leaving college, this effect was moderated by parental wealth, with richer students benefiting more from being happy. Furthermore, there are times when being flexible, sociable, and optimistic might not be appropriate, and might distract one from the task at hand. For example, some clerical or accounting jobs might require a person who is asocial and quiet as well as very careful about errors and who strictly follows rules. Lucas and Diener (2003) discussed the types of jobs that might most profit from happy workers and those vocations in which happiness might be less of an advantage.

In summary, perhaps the most important limitation to our conclusions is that being happy is more adaptive in certain situations than in others. For example, happiness may be most functional when it occurs in benign life circumstances and may be less helpful during dangerous times. Nonetheless, the advantages of happiness reviewed in this article are rather striking, and a major task for future research will be to determine whether these benefits always accrue or whether circumstances exist in which a dysphoric personality leads to greater success.

### *Causality and Possible Third Variables*

We found in our review that experimental studies generate the same basic conclusions as the cross-sectional and longitudinal research. Yet, a question nags: Could happy people be successful simply because they possess more resources in the first place, which is the reason they are happy? Certainly, some of the effects we review may be due to some degree to the effects of beneficial circumstances on happiness (e.g., Headey & Veenhoven, 1989). The longitudinal research, however, suggests that this is not the complete explanation because happiness often long precedes the successful outcomes. For example, happiness in college (long before the person enters marriage or the workforce) precedes higher income and a more satisfying marriage many years later, even when Time 1 factors are controlled. Furthermore, in an 18-month longitudinal study that used causal modeling to test two competing models—that is, happiness as influencing five of its correlates versus the reverse—the results supported the happiness-as-cause model for 17 out of 18 predictions that differentiated the models (Stones & Kozma, 1986). Nevertheless, the possibility remains that individuals with certain personal resources such as good social skills, high activity levels, self-efficacy, and creativity are likely to be more successful at an early age, and, hence, to maintain and reinforce their success and happiness at a later age because they continue to have more personal resources and, therefore, more successes. Again, however, the laboratory experimental studies suggest that this is not the entire explanation for happy people's success.

Furthermore, it is important to establish that positive affect is the key variable associated with desirable characteristics and, ultimately, with successful outcomes—not the absence of negative

affect or depression. Some studies are able to address this question directly, as they include both positive affect and negative affect as variables or manipulations. For example, in the helping literature, experimental inductions of positive affect produce increased prosocial behavior, whereas inductions of negative affect do not necessarily decrease helping (e.g., Aderman, 1972; Berkowitz, 1987; Isen & Levin, 1972; Rosenhan et al., 1974). Regarding social interactions (e.g., Cunningham, 1988a, 1988b), creativity (e.g., Hirt et al., 1996; Richards, 1994), and evaluations of strangers (e.g., Baron, 1987, 1993), it appears that positive mood inductions do not produce symmetrical effects. Experimental laboratory research—for example, on helping, creativity, and task performance—also often includes neutral mood conditions, which do not parallel the effects of happy mood (e.g., Berkowitz, 1987; Cunningham, 1988a; Estrada et al., 1994; Isen, 1970, 1993; Isen et al., 1985; Rosenhan et al., 1974). As another example, some cross-sectional and longitudinal studies show significant effects of positive affect, but not negative affect—for example, on mortality risk in the nun study (Danner et al., 2001), on likelihood of developing a cold (Cohen et al., 2003), or on organizational citizenship (Credé et al., 2005). In summary, many of the effects we describe in this article cannot be attributed simply to the absence of negative affect in happy people, although it is possible that some of the effects are due to lack of negative affect. Disentangling the effects of positive affect from lack of negative affect or depression should be a goal of future research, as many studies, such as in the areas of immunity and health, still consistently fail to include measures of positive emotion.

Further evidence that the effects reviewed here are not simply due to unspecified third variables comes from within-person studies, which show that positive moods correlate over time with desirable outcome variables. On the days or moments when people are in positive mood states, they are more likely to feel and behave in certain ways than when they are in negative mood states. Although studies of within-person patterns are not conclusive proof of causality, they add yet another type of evidence from which the effects of positive emotions can be inferred. In summary, taken together, a variety of different sources of evidence suggest that positive affect leads to certain outcomes rather than simply being caused by them. Nonetheless, longitudinal and long-term experimental studies, which assess a variety of personality characteristics, as well as positive emotions and outcomes, would advance understanding of the intricate relations between personal attributes and chronic predispositions to positive affect.

### *Process Issues*

#### *Mediation*

One conclusion from our review of the empirical evidence is that most of the effects of being happy are due to the fact that happy people experience positive moods most of the time and, by definition, experience them more than unhappy people. However, happy people might possess certain characteristics and behavioral propensities that are helpful even in the absence of a positive mood. Although little is known at present about the genetic predispositions characterizing chronically happy individuals, we cannot discount the possibility that long-term happiness may be directly linked—perhaps through inborn correlates—with particular

desirable outcomes or characteristics (e.g., extraversion, optimism, sociability). As a result, these qualities may be evident and may produce beneficial results even when chronically happy people are in neutral or even unpleasant moods.

An alternative and persuasive perspective of the role of positive affect as mediator of the happiness-success relation comes from Fredrickson's (1998, 2001) broaden-and-build model. She suggested that positive emotions broaden our cognitive and behavioral repertoire and allow for an accrual of resources, the learning of new skills, and so forth. In our framework, the experience of positive affect is critical—that is, individual differences in long-term happiness may influence the ease with which a person enters a "good mood" (cf. Larsen & Ketelaar, 1991), but the affect itself is the key to the positive outcomes associated with positive moods. Thus, while happy people overall may be found to enjoy a variety of positive outcomes, the frequent experience of positive mood (in the absence of a temperamental disposition toward such moods) should still convey benefits. Notably, because the key to success is happy affect and not necessarily a happy genetic predisposition, we submit that chronically unhappy people are therefore not fated to failure. Another implication is that future happiness-increasing interventions should focus on how people can adopt new practices and habits, and restructure their lives, in ways that allow for a stream of positive experiences and positive emotions (Lyubomirsky, Sheldon, & Schkade, 2005).

We know from the experimental studies that momentary positive emotions produce many of the outcomes we reviewed. We also know from cross-sectional and longitudinal studies that happy people exhibit behaviors that are parallel to the outcomes found in the experimental studies. What we do not know, because there is little research on mediation in this area, is the degree to which people's current moods mediate the effects of chronic happiness on behavior. As mentioned previously, Fredrickson's (1998, 2001) model suggests that even in the absence of a positive mood—indeed, even in a negative mood—happy people will generally perform better on many tasks because of the skills they have learned and resources they have accumulated because of their frequent experiences of positive moods in the past (Fredrickson & Joiner, 2002; Fredrickson et al., 2003). We suspect that this is a case of partial mediation—namely, that happy people perform many of the desirable behaviors we review because they are more often in a pleasant mood, but that being happy in the past might lead to the accumulation of skills, social support, other resources, and adaptive habits that the happy person can use even when in a negative mood. Thus, an individual's current mood is likely to produce certain benefits, but current mood might not entirely explain the successful performance of happy people. It will be important in future research to separate the effects of happy temperament, happiness engendered by current life circumstances, and induced happy moods on the characteristics we reviewed earlier. Tests of the mediation hypothesis promise to be an exciting direction for future scientific work.

The search for mediational variables might begin with an examination of the various outcomes we have examined here. In this review, we have treated a variety of desirable life outcomes as if they hold equal status in their overall importance in people's lives. It may be, of course, that these outcomes are themselves intercorrelated and perhaps even differentially important. For instance, the social benefits of positive affect may be the central mediator of the

effect of positive affect on other life outcomes. Research that combines a variety of life outcomes will be needed in order to answer the important question of how these various "goods of life" relate to and potentially promote each other.

### *The Varieties of Positive Affect*

An important topic of investigation for the future involves distinguishing the effects of positive affect at a general level versus the effects of discrete positive emotions such as contentment, affection, curiosity, elevation, pride, and joy. Specific emotions may be linked with specific beneficial outcomes—for example, contentment with originality, affection with sociability, pride with helping, and curiosity with learning and problem solving—and these possibilities remain an intriguing direction for future research.

One important question concerns whether the effects of positive affect that we review apply to all positive emotions or only to those high in arousal. In the case of positive emotions, we can ask whether the outcomes reviewed in this article apply to contentment only to elation and joy. The work of Watson (2000) suggested that feelings of energy and activity are much more likely to accompany elation than they are to accompany contentment. However, little more is known about the effects of the two types of affect, and whether individuals who have chronic tendencies to contentment will be as successful as those who are prone to joy. An interesting finding in this regard comes from a study that predicted work outcomes at age 26 from reports of emotions at age 18 (Roberts et al., 2003). The authors found that occupational attainment was predicted by both positive affect-communion and by positive affect-agency, whereas financial independence was significantly predicted only by positive affect-communion. In the affect literature, the distinction between moods and emotions is often seen as pivotal. However, in the literatures that we reviewed, the two are rarely, if ever, separately measured. Thus, we are unable to draw conclusions about whether a propensity to positive moods versus emotions is more conducive to the outcomes we describe. For example, the possibility exists that the types of emotions induced in the experimental studies stand out as figure against ground and are more likely to produce the effects outlined in this article. On the other hand, moods are relatively longer lasting and are less likely to be in focal awareness; therefore, relative to emotions, moods may influence behavior in more subtle ways. Once again, assessing moods versus emotions and examining their discrete effects on the behaviors we review, and on various types of success, is an important avenue for future research.

### *Future Research Questions*

Additional questions for research are needed to extend the pattern of findings we describe here and to support the unifying framework we present. Because positive affect has often been treated as an outcome rather than a predictor of the goods of life, the potential benefits of positive affect, itself, have remained largely untested. Hence, research should begin to address the potential causal role of positive affect in securing positive life outcomes. In addition, examining positive affect in this way opens a variety of new questions for research on the positive benefits of

positive affect. For example, what types of success are most enhanced by positive affect? Are there long-term beneficial outcomes in some areas for unhappy people? Are different outcomes likely for individuals who are prone to experience different forms of positive affect, such as joy, affection, or contentment? What are the control processes that prevent positive affect from amplifying in a cycle with success and moving ever upward to dysfunctional levels? At the broadest level, what is the optimal level of positive affect in different tasks, contexts, and cultures? Our hope is that our review stimulates research that examines each of these questions in detail.

### *Is Positive Affect a Magic Elixir?*

Readers of our review might conclude that happiness and positive affect are the royal road to the perfect life. Leaving this impression is not our intent. There are a number of ways that positive emotions can produce adverse effects. For one thing, in some situations, positive affect is not the most functional response. For another thing, happy people might use their creativity, self-confidence, negotiation ability, and sociability to achieve aims that are not beneficial to society, such as being the "king" of the local bar or even to achieve aims that are harmful to society, such as being an effective confidence man. It follows from our review, for instance, that a happy member of the Mafia might be more effective than an unhappy one, and a happy scam artist might be more effective at committing fraud without being caught. Thus, success must be defined in terms of a cultural and behavioral context, and positive emotions might not lead every individual to be successful at goals that the broader culture or the world believes are desirable.

We are aware that many mildly dysphoric individuals function very well in society. They write newspaper columns, run psychology departments, act in popular movies, argue before the U.S. Supreme Court, and perform many other jobs with distinction. Qualities such as intelligence, perseverance, conscientiousness, and social criticism of the status quo are desirable characteristics in many situations, and are to some degree separable from positive affectivity. A happy person with these characteristics might be very effective in many vocations and roles, but some situations might exist, as yet undefined, in which mild dysphoria leads to superior functioning.

It is important to keep in mind that human emotional life is rich, and that the relations of positive affect and negative affect to functioning are complex ones. At times, happiness will be most adaptive and at other times may require a level of misery or at least discontent. Our framework suggests that positive bias in a flexible system may well be adaptive, but an exclusively happy life is not only unrealistic—it is not necessarily the most desirable life.

A commonly expressed claim is that happy people are satisfied with the status quo and are not motivated to accomplish new goals or to "change the world." The data reviewed in this article indicate that this blanket condemnation of happiness is inaccurate—happy people perform well in many areas of life, including domains such as work and income, that require motivation and persistence. Happy people can have lofty goals and experience positive affect that is due to the progress they make toward those goals. At the same time, specific dissatisfactions can also motivate happy people to work for change and to pursue new directions. Andrews and Withey (1976) found that people who are happy with their lives are

not inevitably satisfied when they judge the conditions in society; they found that satisfaction with one's life and with society and government were distinct. Furthermore, many of the characteristics observed in happy people—optimism, energy, social engagement, originality, altruism, likability, productivity, good health—are the very characteristics that could help them improve the conditions of theirs and others' lives.

In summary, although happy people are generally more satisfied people, this does not appear to prevent them from being achievement oriented. Indeed, happy people appear to be relatively more likely to seek approach goals. The interaction of cognitive judgments about the desire for change with the propensity for positive affect is a ripe area of inquiry for the future.

### *Do Happy People Experience Negative Emotions?*

If happy people were unable to experience negative emotions when things go wrong, their responses would likely be dysfunctional because they might not react appropriately to threats, losses, and other significant negative events. If, on the other hand, happy people can occasionally experience negative emotions, as we suggest they do, they might be particularly successful because they can be approach focused most of the time, but not when conditions become adverse. Thus, happy people can remain in a positive mood as long as things are positive or neutral, but experience a negative mood when things are very bad, thus motivating them to withdraw, conserve resources, or otherwise avoid harm. Furthermore, there may be a resetting point around a person's current circumstances so that people are most likely to react with negative affect when conditions worsen from their current state (Kahneman & Tversky, 1979).

The negative affect produced by bad events causes a change in thoughts, feelings, and behaviors. When adverse events occur, people quit using heuristic processing and switch to vigilant and careful analytical processing, which does not involve an overreliance on previous solutions to challenges. The person needs to safeguard resources and focus on solving the immediate problem. At the same time, it is functional for the person to return to a positive state when conditions improve. Extending the ideas of Fleeson (2001), happiness could be considered a "density function" in which people vary in terms of how much they are in the state of positive experience. Although frequent experience of this state appears to be functional, an ability to react to significant negative events is also likely to be beneficial. Thus, even happy people show substantial variations in their moods over time. Research confirms that the happiest individuals do feel occasionally unhappy. For example, Diener and Seligman's (2002) happiest college students all displayed ups and downs in their moods, but stayed in the positive zone the majority of the time. However, the findings showed that they also occasionally descended into the negative range and experienced unpleasant emotions, indicating that the happiest individuals are not trapped in a positive mood regardless of circumstance. We found the same pattern in the World Value Survey (1994)—most of those responding with a 10 on a 10-point life satisfaction scale (the top 14% of respondents) reported having experienced a negative mood or emotion during the past few weeks.

In a laboratory study, chronically happy people reported negative feelings (such as being sad, anxious, and discouraged) in

response to negative feedback about their own performance (Lyubomirsky & Ross, 1997). The fact that happy people can and do respond emotionally to events may provide part of the answer to why they are likely to succeed in life. Unlike in short-term mood manipulation studies, in which an induced positive mood often elicits an inappropriate response to the situation, in everyday life, happy people can react negatively when it is appropriate to the context, but later return to a positive state.

### *Costs and Trade-Offs of Happiness*

Despite the many benefits of long-term positive affect described in this article, happiness can have costs or downsides in some situations and, in other situations, have trade-offs with other desired values. Happy people are characterized by certain behaviors, as reviewed previously, and, in some situations, these characteristics may prove detrimental. For example, if a happy individual uses a heuristic to solve a frequently encountered problem, but the heuristic now provides the wrong answer and there is no failure feedback available in the situation, he or she will perform more poorly than an unhappy person. As discussed earlier, this possibility likely accounts for findings of "depressive realism" in some studies (Alloy & Abramson, 1979), as well as for the findings that, under some conditions, happy people show more stereotypical thinking because they rely on heuristic shortcuts (e.g., Edwards & Weary, 1993). To the extent that relying on shortcuts leads to nonoptimal performance, individuals in a positive mood may suffer. Clearly, the social costs of relying on stereotypes to make decisions may be great.

In addition, because positive moods signal to the individual that things are going well, less happy individuals may be superior at critical thinking and error checking (e.g., Mackie & Worth, 1989; Melton, 1995). Thus, it is unlikely that one particular mood state leads to superior problem solving or task performance in general—rather, positive affect and negative affect probably have differing effects on cognitive processing that may or may not be well suited to a particular task. Lucas and Diener (2003) suggested that mildly dysphoric individuals are likely to underperform in leadership and social tasks, but might excel in jobs such as monitoring a nuclear power plant where constant vigilance for possible problems is absolutely essential. Clearly, the relation of moods to decision making and problem solving is complex and the match between individual differences and situational requirements may determine the adaptive significance of any emotional style.

Earlier we suggested that happy people may feel positive emotions more frequently because they are relatively more sensitive to rewards in their environment. Tying positive emotionality to Gray's (1994) "behavioral approach system" makes a good deal of sense and it also highlights potential pitfalls of happiness. Clearly, the complexity of human life requires that one avoid some circumstances, and always moving toward evermore tantalizing rewards might lead an individual's existence to devolve into hedonism or inappropriate risk taking. In addition, the tendency to recognize and move toward rewards in the environment may make a happy person susceptible to approach–approach conflicts, caught between two potentially positive life paths.

In addition to the possibility that happy individuals might be outperformed by their less happy peers in some situations, it is worth noting that people make trade-offs in their decisions regard-

ing activities and happiness. For example, compared with European Americans, Asians and Asian Americans are more likely to persist at a task at which they are not performing well in order to master it and may thus suffer in terms of mood because they continue working on something at which they are not proficient (Heine et al., 2001; Oishi & Diener, 2003). Other researchers have found that placing high importance on goals can heighten happiness when goals are achieved, but can also increase worry about the goals and amplify greater negative affect when the goals are not achieved (Diener, Colvin, Pavot, & Allman, 1991; Pomerantz, Saxon, & Oishi, 2000). Happiness is one of life's goods, but it exists in the context of a variety of other goods (Ryff, 1989; Ryff & Singer, 1998). Thus, individuals might well sacrifice happiness in the pursuit of other valued ends. Notably, however, it may be the happy who are particularly willing to sacrifice positive affect for the sake of other goals, primarily because of the other resources and capacities that have been afforded to them by the experience of happiness.

Furthermore, particular circumstances or degrees of positive affect may lead to decrements in performance. Recent work has shown that extremely happy individuals perform slightly lower in some achievement situations compared with very happy persons, suggesting that the optimum level of happiness might vary depending on the task at hand (Diener, Oishi, & Lucas, 2005). Extremely happy individuals might be inclined to be too sociable to perform at the maximum level in some achievement situations that occur over long periods of time.

Very happy individuals may also be judged harshly for their apparent satisfaction—for example, as shallow or complacent. Indeed, research has shown that happiness in the context of a potentially lazy or meaningless life is judged quite negatively (Scollon & King, 2004). It may be that the positive social perception of happy individuals depends on the particular situations in which individuals encounter them. An apparently happy person may be judged quite favorably in an acquaintanceship situation, but an incongruously happy person may well be judged more negatively. The capacity to downregulate positive affect may be a facet of social skill and effective self-regulation (e.g., M. W. Erber & Erber, 2001; R. Erber & Erber, 2000).

Although existing evidence indicates that happy individuals indeed tend to be successful across a number of life domains, we must be mindful that negative emotions can be functional under some circumstances. Individuals who are temperamentally prone to greater levels of negative emotions may help their groups under some conditions. In addition, happiness in some circumstances may be sacrificed in order to reach long-term goals. We do not yet fully understand the limits of the success of happy people, and we do not know the extent to which the effects of positive affect are dependent on culture and cultural norms for emotion. The current findings indicate that happy people are in many ways successful people. This does not mean, of course, that happy people show superior performance in every activity and situation.

### Final Remarks

We have reviewed extensive evidence demonstrating that happy people are successful and flourishing people. Part of the explanation for this phenomenon undoubtedly comes from the fact that success leads to happiness. Our review, however, focuses on the

reverse causal direction—that happiness, in turn, leads to success. Happy people show more frequent positive affect and specific adaptive characteristics. Positive affect has been shown, in experimental, longitudinal, and correlational studies, to lead to these specific adaptive characteristics. Thus, the evidence seems to support our conceptual model that happiness causes many of the successful outcomes with which it correlates. Furthermore, the data suggest that the success of happy people may be mediated by the effects of positive affect and the characteristics that it promotes. It appears that happiness, rooted in personality and in past successes, leads to approach behaviors that often lead to further success. At the same time, happy people are able to react with negative emotions when it is appropriate to do so.

The desire to be happy is prevalent in Western culture (e.g., Diener, Suh, Smith, & Shao, 1995; King & Broyles, 1997), and a happy life is very much the preferred life (King & Napa, 1998). If subjective well-being feels good but otherwise leaves people impaired, for example, in terms of decision making, social relationships, physical health, or success in life, we might question its net value for society and for the individual. In this article, we reviewed cross-sectional, longitudinal, and experimental data showing that happy individuals are more likely than their less happy peers to have fulfilling marriages and relationships, high incomes, superior work performance, community involvement, robust health, and a long life. The three classes of evidence also indicated that positive emotions, as well as chronic happiness, are often associated with resources and characteristics that parallel success and thriving—that is, desirable behaviors and cognitions such as sociability, optimism, energy, originality, and altruism. Although our conclusions run counter to the belief that successful outcomes and desirable characteristics are primarily the causes, rather than the consequences, of happiness, a surprisingly large amount of evidence now appears to challenge this belief.

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## New Editor Appointed, 2007–2012

The Publications and Communications (P&C) Board of the American Psychological Association announces the appointment of a new editor for a 6-year term beginning in 2007. As of January 1, 2006, manuscripts should be directed as follows:

- *Emotion* ([www.apa.org/journals/emo.html](http://www.apa.org/journals/emo.html)), **Elizabeth A. Phelps, PhD**, Department of Psychology, New York University, 6 Washington Place, Room 863, New York, NY 10003.

**Electronic manuscript submission.** As of January 1, 2006, manuscripts should be submitted electronically via the journal's Manuscript Submission Portal (see the Web site listed above). Authors who are unable to do so should correspond with the editor's office about alternatives.

Manuscript submission patterns make the precise date of completion of the 2006 volumes uncertain. The current editors, Richard J. Davidson, PhD, and Klaus R. Scherer, PhD, will receive and consider manuscripts through December 31, 2005. Should 2006 volumes be completed before that date, manuscripts will be redirected to the new editor for consideration in 2007 volume.