

Positive Illusions and Well-Being Revisited: Separating Fact From Fiction

Shelley E. Taylor and Jonathon D. Brown

In 1988, we published an article that challenged the notion that accurate perceptions of self and the world are essential for mental health (Taylor & Brown, 1988). We argued instead that people's perceptions in these domains are positively biased and that these positive illusions promote psychological well-being. In the current article, we review our theoretical model, correct certain misconceptions in its empirical application, and address the criticisms made by Colvin and Block.

Taylor and Brown's (1988) model of mental health maintains that certain positive illusions are highly prevalent in normal thought and predictive of criteria traditionally associated with mental health. The work initially derived from research with cancer patients (Taylor, 1983) but was integrated in the 1988 essay with literature on social cognition, suggesting that the formulation could also make sense of previously anomalous and somewhat unrelated errors and biases in human thought. As is the case with any theoretical model, the goal of the article was to generate research. On this ground, the model appears to have been quite successful. According to Colvin and Block's estimation, approximately 250 studies have made use of the formulation. Given its popularity and influence, a critical examination of the Taylor and Brown argument is appropriate.

In this article, we (a) review some of the central points of our theoretical model; (b) examine Colvin and Block's article in view of these issues; (c) present research germane to our thesis but not discussed by Colvin and Block; and (d) raise some important issues that have yet to be resolved. As before, our aim is to contribute to an informed dialogue regarding the nature of psychological well-being.

Accuracy as Essential for Well-Being

The point of departure for our 1988 article was the widely accepted belief that accurate perceptions of oneself and the world are essential elements of mental health (Jahoda, 1953; Maslow, 1950). Against this backdrop, we reviewed evidence indicating that most people exhibit positive illusions in three important domains: (a) They view themselves in unrealistically positive terms; (b) they believe they have greater control over

environmental events than is actually the case; and (c) they hold views of the future that are more rosy than base-rate data can justify. Establishing the prevalence of positive illusions in non-pathological populations was one important contribution of our article. As just noted, accuracy has been regarded as essential to psychological well-being. Yet our review showed that most people do not hold entirely accurate and unbiased perceptions of themselves and the world in which they function. It follows, then, that accuracy is not essential for mental health; otherwise, most people would have to be classified as unhealthy.

After documenting the prevalence of positive illusions in normal populations, we examined whether positive illusions promote psychological well-being. Our strategy had two parts. First, we identified established criteria of mental health from the relevant clinical literature: contentment, positive attitudes toward the self, the ability to care for and about others, openness to new ideas and people, creativity, the ability to perform creative and productive work, and the ability to grow, develop, and self-actualize, especially in response to stressful events (Taylor, 1989; Taylor & Brown, 1988). We then reviewed evidence suggesting that positive illusions contribute to each of these behaviors and perceptions. For example, we discussed research indicating that the ability to engage in productive, creative work, which is considered by many to be a defining feature of mental health (e.g., Jourard & Landsman, 1980), is facilitated by the perception that one is capable and efficacious, even if these beliefs are somewhat illusory.

In summary, our 1988 article made two major points: (a) It challenged a major tenet of psychological thought by documenting that most people hold overly positive views of themselves, their ability to effect change in the environment, and their future; and (b) it considered how positive illusions of this type contribute to a broad range of criteria consensually regarded as indicative of psychological well-being.

Colvin and Block Critique

With this discussion as background, we turn to Colvin and Block's critique. To begin, we note that Colvin and Block focus heavily on only a small portion of Taylor and Brown's (1988) essay (three pages). Moreover, the section that is given such attention does not make the claims attributed to it by Colvin and Block. Colvin and Block state that "the heart of the evidence

Shelley E. Taylor, Department of Psychology, University of California, Los Angeles; Jonathon D. Brown, Department of Psychology, University of Washington.

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Correspondence concerning this article should be addressed to Shelley E. Taylor, Department of Psychology, 1283 Franz, University of California, Los Angeles, Los Angeles, California 90024-1563.

that Taylor and Brown bring to bear in support of their argument that positive illusions underlie mental health is to be found in the section of our paper titled "Positive Illusions and Social Cognition" (pp. 194–197). This is a misstatement of fact. The material referred to in these pages documents the prevalence of illusions in normal populations (and their relative absence in dysphoric populations). It does not examine whether positive illusions promote psychological well-being. This issue is discussed in the next section of our article (pp. 197–200), in which we focus on the criteria traditionally associated with mental health and then evaluate the relation of positive illusions to those criteria. The so-called Step C that Colvin and Block attribute to us and criticize is their own invention, not a faithful representation of our line of argument.

More generally, the bulk of Colvin and Block's critique is concerned with research that goes under the name of depressive realism. As reviewed in our 1988 article, there is suggestive evidence that depressed people exhibit accurate perceptions of the type traditionally thought to characterize the psychologically well-adjusted individual. Colvin and Block correctly note that this provocative thesis must still be regarded as preliminary: Some studies find that depressed individuals are balanced and accurate in their perceptions; others find they are negatively biased in their perceptions (for reviews, see Ackerman & DeRubeis, 1991; Alloy & Abramson, 1988; Dobson & Franche, 1989).

Resolution of this issue is not, however, critical to Taylor and Brown's (1988) thesis. Our concern is with mental health, not depression. The crucial issue is not whether depressed people are accurate or negatively biased; it is whether normal, healthy adults are accurate or positively biased. The evidence on this point is clear: Most healthy adults are positively biased in their self-perceptions. This fundamental fact is not altered by evidence that depressed people often bias information in a negative direction. Evidence that the perceptions of depressed people are just as distorted as those of healthy adults can hardly be taken as supporting the traditional view that mental health demands accuracy.

In addition to questioning the existence of depressive realism, Colvin and Block make several other points deserving of attention. In the following sections, we consider these issues. Specifically, we address the following: (a) Do the perceptions and beliefs we have called "positive illusions" deserve to be so characterized, and (b) do these perceptions and beliefs actually promote psychological adjustment?

What Constitutes an Illusion?

As just noted, Colvin and Block question whether Taylor and Brown (1988) were warranted in concluding that most people hold positive illusions about themselves and the world. We concur that this issue—what constitutes an illusion—is an important one. In our 1988 article, we were careful to point out that it is often hard to distinguish reality from illusion. This is especially difficult when one is dealing with people's interpretations or subjective perceptions of stimuli and events that do not have a sure, physical basis (Brown, 1991). If a person thinks she has a wonderful sense of humor, who is to say that she is wrong?

The tack we have taken in addressing this issue, which has

been adopted by other researchers, is to identify multiple criteria that might be said to reflect illusion and look at overall patterns of evidence. Although any one operational definition of illusion may have problems associated with it, when studies using different criteria with nonoverlapping problems show the same effect, our confidence in the phenomenon is increased. We maintain that this situation exists in the literature on positive illusions.

Self-Aggrandizing Self-Perceptions

Consider our claim that people hold unrealistically positive views of themselves. This assertion is not based on evidence that people's self-conceptions are more positive than negative, as Colvin and Block contend (pp. 4–5). It is based largely (although not exclusively) on evidence that people consistently regard themselves more positively and less negatively than they regard others. Insofar as it is logically impossible for most people to be better than others, we label this tendency an illusion.

Colvin and Block argue that this tendency is not illusory. They contend that students at elite universities are warranted in believing they are better than most other people. Although we do not find their argument compelling (in what sense are university students warranted in believing they are kinder, warmer, and more sincere than the average person?), we note that the "better-than-most" effect does not depend on whether people are comparing themselves with a generalized other (Brown, 1986, 1993; Brown & Gallagher, 1992) or with those who are more similar to themselves, such as fellow students at their own university (Campbell, 1986; Dunning, Meyerowitz, & Holzberg, 1989; Schlenker & Miller, 1977). Nor is this form of self-aggrandizement found only among college students. At least three studies have shown that individuals facing acute or chronic health threats show the same self-aggrandizing bias when evaluating themselves relative to other patients with the same disease (Buunk, Collins, Taylor, VanYperen, & Dakof, 1990; Helgeson & Taylor, 1993; Taylor, Kemeny, Reed, & Aspinwall, 1991). In short, there is no support for the contention that these judgments are simply the normatively appropriate perceptions of privileged college students.

Colvin and Block raise a second objection to our depiction of these self-aggrandizing beliefs as illusory. They argue that it is entirely fitting for people to believe they are better than others because people often (a) choose dimensions of comparison on which they are advantaged, (b) define attributes in idiosyncratic ways that emphasize their perceived strengths, or (c) select worse-off comparison groups that guarantee a favorable self-other comparison. We certainly agree that people are highly resourceful when it comes to promoting positive views of themselves. However, these are demonstrations of the ways in which people develop and maintain illusions rather than counterexplanations or exceptions to the effect (Brown, 1991; Taylor & Brown, 1988; Taylor, Wood, & Lichtman, 1983). In summary, we stand by our original 1988 assertion that people's positive views of themselves deserve to be classified as illusory.

Moreover, evidence continues to accumulate indicating that these self-aggrandizing views are linked to psychological well-being. For example, in the achievement domain, people with high self-perceptions of ability are more apt to attain success

than are those whose perceptions are more modest (Sternberg & Kolligan, 1990). Most important, this is true even if these perceptions are somewhat inflated. As one leading researcher noted:

It is widely believed that misjudgment produces dysfunction. Certainly, gross miscalculation can create problems. However, optimistic self-appraisals of capability that are not unduly disparate from what is possible can be advantageous, whereas veridical judgments can be self-limiting. When people err in their self-appraisals, they tend to overestimate their capabilities. This is a benefit rather than a cognitive failing to be eradicated. If self-efficacy beliefs always reflected only what people could do routinely, they would rarely fail but they would not mount the extra effort needed to surpass their ordinary performances. (Bandura, 1989, p. 1177)

Other researchers suggested that overly optimistic assessments of one's ability are particularly beneficial during early childhood, facilitating the acquisition of language and the development of problem-solving and motor skills (Bjorklund & Green, 1992; Phillips & Zimmerman, 1990; Stipek, 1984). Viewing oneself in more positive terms than one views others also appears to mollify the effects of stressful events such as health threats. The belief that one is healthier or coping better than other patients similar to oneself is not only highly prevalent in such samples (e.g., Helgeson & Taylor, 1993; Reed, 1989; Wood, Taylor, & Lichtman, 1985), it is also associated with reduced distress (e.g., Helgeson & Taylor, 1993; Reed, 1989).

To summarize, we asked two questions of the literature on people's self-aggrandizing beliefs about themselves: Are these beliefs illusory, and are they linked to the criteria and tasks normally associated with mental health? On these points, we believe our 1988 assertions are buttressed, not challenged, by subsequent evidence from the experimental literature and from real-world samples.

Illusion of Control

Parallel to the questions posed by the self-aggrandizement literature, Taylor and Brown (1988) posed two questions concerning the evidence for an illusion of control: Does such an illusion exist? Is it associated with the tasks and criteria traditionally associated with mental health? In examining our original article and some of the studies that have been generated since that time, Colvin and Block suggest that depressed people are not more realistic than healthy adults in terms of the illusion of control. As indicated earlier, research on depressive realism is of interest in its own right, but it does not change the fact that normal, healthy adults often show an illusion of control.

Moreover, evidence continues to mount that this illusion of control is associated with good adjustment, especially under stressful circumstances. A substantial experimental literature largely generated in the 1970s indicates that an illusion of control helps people adjust to forthcoming laboratory stressors, and these conclusions remain unchallenged by subsequent experimental work (Spacapan & Thompson, 1991; Thompson, 1981; Thompson & Spacapan, 1991). Similarly, experiments conducted in medical settings clearly demonstrate that people who believe they have control during stressful procedures cope better than those undergoing the same procedures but not exposed to control-enhancing interventions, as indicated by a broad array

of physiological, health-related, and affective measures; these effects occur even when that "control" is largely perceived rather than actual (Spacapan & Thompson, 1991; Thompson & Spacapan, 1991; see Taylor, 1991, for a review).

Complementing these findings, a growing literature over the past five years has addressed whether self-generated feelings of control relate to adjustment in the context of chronic disease. The general finding of this literature is that, just as in the laboratory and in controlled medical experiments, perceived control is associated with better adjustment (see Spacapan & Thompson, 1991; Thompson & Spacapan, 1991, for reviews).

Why, then, do Colvin and Block review a subset of the literature on self-generated perceptions of control and conclude that the evidence is mixed? First, their argument, again, depends heavily on the depressive realism phenomenon, which, as we have noted, is not directly germane to the Taylor and Brown (1988) thesis. The second reason stems from the fact that Colvin and Block evaluate the illusion of control with respect to a false standard. The important issue is not whether people believe they can control things they cannot control (and the relation of those beliefs to adjustment) but rather whether people believe they can control things more than is actually the case (and how these beliefs relate to adjustment). A discussion of the former leads to absurd predictions. One would have to predict, for example, that people who believe that they make the sun rise in the morning and set at night are examples of mentally healthy individuals. Although some laboratory research examined the illusion of control in circumstances in which no control exists (e.g., Langer, 1975), Taylor and Brown (1988) were concerned with the second issue, that is, whether people believe they can control things more than is actually the case.

Thus, in evaluating evidence concerning self-generated perceptions of control, one must ask: control over what? Clearly, from the standpoint of Taylor and Brown (1988), not all feelings of personal control would be expected to predict adjustment. If a small group of individuals persist in believing that they can cure themselves of indisputably advancing, chronic, or life-threatening diseases, we might find that these individuals are maladjusted, as is sometimes the case. Typically, however, these are not the domains over which chronically ill patients believe they can exert control. People switch their control-related beliefs from survival and cure to control of symptoms and of life tasks, and, in these domains, control continues to be associated with good adjustment despite clearly declining absolute levels of control (e.g., Buunk et al., 1990; Reed, Taylor, & Kemeny, 1993; Thompson, Nanni, & Levine, 1993; Thompson, Sobolew-Shubin, Galbraith, Schwankovsky, & Cruzen, 1993).

The third reason why Colvin and Block conclude falsely that evidence for the adaptiveness of illusion of control is equivocal is that they examine studies designed to address issues more complex than this simple main effect and attempt to construe main effect conclusions from them. Many of the studies they cite are addressing issues orthogonal to the general adaptiveness of control. For example, the studies by Affleck, Tennen, Pfeiffer, and Fifield (1987) and Taylor, Helgeson, Reed, and Skokan (1991) were concerned with direct control versus vicarious control and how control-related beliefs and their relation to adjustment shifts with disease course. The Burish et al. (1984) investigation concerned health locus of control. The study by Schi-

affino and Revenson (1992), cited by Colvin and Block as a qualification of the illusion of control, draws that conclusion only about which variables moderate or mediate the relation of perceived control to adjustment. The relation itself is not in dispute: Perceived control was associated with less pain, less disability, and reduced depression (see also Taylor, Kemeny et al., 1991).

Although a number of published articles speculated thoughtfully about the potential limitations of the illusion of control (e.g., Reid, 1984; Thompson, Cheek, & Graham, 1988), most of these concerns address reservations about the adaptiveness of feelings of control when control does not exist. It is important to reiterate that the illusion of control typically represents a mild distortion in domains over which people actually have some control. Like the other illusions, the illusion of control is not typically held about things that are completely uncontrollable (although this condition has sometimes been created in certain laboratory studies). In the case of self-generated feelings of control, research has moved beyond the simple question of whether control predicts adjustment, a relation firmly established by the experimental literature and by the literature that asks patients what areas of their lives they think they can control. In summary, we stand by our original conclusion that the illusion of control often exists in normal samples and that, when it does, it is typically associated with good psychological adjustment.

Unrealistic Optimism

Parallel to our questions concerning self-aggrandizement and the illusion of control, we asked two questions of the literature on unrealistic optimism: Does it exist in normal samples? When it does, is it associated with the tasks and criteria normally regarded as indicative of mental health? Evidence for unrealistic optimism in normal samples is voluminous and continues to grow. According to Weinstein (1993), there are at least 121 articles on perceived invulnerability and optimistic biases about risk and future life events alone, a listing that does not include a number of relevant references on optimism as a trait concept (e.g., Carver, Scheier, & Weintraub, 1989; Scheier & Carver, 1985; Scheier et al., 1989). Although Colvin and Block correctly note that some of the studies found that depressed people are unduly pessimistic rather than accurate, these studies uniformly find that normal adults are optimistic. The evidence clearly indicates that most people anticipate that their future will be brighter than can reasonably be justified on statistical grounds.

In large part, this voluminous literature also continues to uphold the conclusions reached in the 1988 review: Unrealistic optimism makes people feel better, it appears to be associated with positive social relationships, it predicts high motivation to engage in productive work, and, as a dispositional construct, it is associated with the ability to cope more successfully and recover faster from certain health-related stressors (e.g., Scheier & Carver, 1985; Scheier et al., 1989; Scheier, Weintraub, & Carver, 1986).

As an illustrative example, consider the article by Taylor et al. (1992), which examined the relation of acquired immunodeficiency syndrome (AIDS)-specific optimism and dispositional optimism to a broad array of indicators of psychological adjust-

ment. This study revealed that men who had tested seropositive for human immunodeficiency virus (HIV) were significantly more optimistic about not acquiring AIDS than men who knew they were seronegative for HIV; this surprising finding was construed as suggestive evidence that AIDS-specific optimism among seropositive men is illusory. Moreover, this AIDS-specific optimism was associated with reduced fatalistic vulnerability regarding AIDS, with the use of positive attitudes as a coping technique, with the use of personal growth/helping others as a coping technique, with less use of avoidant coping strategies, and with greater practice of health-promoting behaviors. In addition, AIDS-specific optimism was related to a lower perceived risk of AIDS and greater feelings of control. A similar pattern of effects was identified for the dispositional measure of optimism. Thus, the breadth of support for the conclusion that AIDS-specific optimism is associated with psychological adjustment is much greater than Colvin and Block imply.

In short, a substantial literature on unrealistic optimism continues to demonstrate that unrealistically optimistic beliefs about the future are held by normal individuals with respect to a wide variety of events. There is, in our judgment, no clear evidence that such beliefs compromise mental health and mounting evidence that they contribute to it.

Further Clarifications Regarding the Taylor and Brown Positive Illusions Formulation

We have already addressed one misconception regarding Taylor and Brown's (1988) position: namely, our model predicts that depressed people are more accurate in their self-perceptions than are nondepressed people. A number of other misconceptions regarding our model have made their way into the literature and into Colvin and Block's critique and are now discussed.

More Illusion Is Better

We restricted our claims regarding the benefits of positive illusion to a specific set of moderate tendencies to view oneself, one's ability to control the environment, and one's future in somewhat more positive terms than can realistically be justified. Typically, these illusions remain mild because the social environment tolerates and fosters modest illusion but not substantial degrees of illusion (Taylor, 1989). At extreme levels, as we noted (Taylor, 1989), illusion may well be maladaptive (Baumeister, 1988). Three of the articles cited by Colvin and Block as refutations of Taylor and Brown (Donovan & Leavitt, 1989; Donovan, Leavitt, & Walsh, 1990; Haaga & Stewart, 1992) also conclude that adjustment is greater, given moderate levels of illusion, but that the illusion-adjustment relation breaks down at high levels of illusion (cf. Diener, Colvin, Pavot, & Allman, 1991). These patterns are consistent with, not contradictory to, our framework.

Positive Illusions Are Simply Defense Mechanisms in Another Guise, and, by Implication, Defensiveness Should Be Associated With Mental Health.

Taylor (1989, Chapter 4) clearly discriminated positive illusions from defense mechanisms both conceptually and opera-

tionally. Chief among these arguments is the finding that positive illusions are directly responsive to threatening circumstances, whereas defenses are conceptualized as inversely responsive to threatening information. Thus, for example, advancing cancer patients typically do not deny or repress information about their deteriorating condition. They are aware that their circumstances have worsened, but within the context of this acknowledgment, they may put a more optimistic spin on their circumstances than conditions warrant. This line of argument questions the appropriateness of Compton (1992) as a test of the positive illusions framework.

All Illusions Are Good

We have confined our arguments regarding the benefits of positive illusions to specific ones that relate to self-perceptions, perceptions of control, and unrealistic optimism. Although there may be other positive illusions that facilitate psychological well-being, this is an empirical case to be made rather than an extension to be drawn from our arguments.

Thus, our analysis also does not imply that illusory self-perceptions are never destructive or that some types of psychopathology are not characterized by illusory perceptions of their own. It is absolutely clear that certain illusions or distortions (e.g., delusions of grandeur, hallucinations, gross misperceptions of physical reality) are associated with mental illness (Brown, 1991; Taylor, 1989; Taylor & Brown, 1988). This important point is sometimes missed by those who have criticized our approach.

Illusion Is Necessary for Mental Health

An argument that illusions promote mental health does not imply that they are a necessary condition for mental health. That is a point that has yet to be proven or refuted. Two points of refuting evidence offered by Colvin and Block are based on this misinterpretation (Compton, 1992; Langer & Brown, 1975).

Illusions Cure People of Physical Illnesses

One of the articles cited by Colvin and Block (Doan & Gray, 1992) is strongly critical of Taylor and Brown (1988), arguing that there is no evidence that positive illusions can cure cancer. We concur. We certainly did not make that claim in the 1988 essay, and Taylor (1989) explicitly argued against this kind of overgeneralization.

The Absence of Depression Is Mental Health

Colvin and Block consistently imply that we used the absence of depression as a primary criterion of mental health. This is not correct. Depression is not the obverse of mental health; it is only one form of mental illness. On the basis of prior theoretical formulations, we identified multiple indicators of mental health: the ability to be happy or contented, the ability to feel good about oneself, the ability to care for and about others, the capacity for creative and productive work, and the ability to grow and develop, especially in response to stressful events (Taylor, 1989; Taylor & Brown, 1988). Considering the convergence

in the literature on these criteria, we are puzzled as to why Colvin and Block believe we "did not use conceptually acceptable and empirically substantial operationalizations of the construct of mental health" (p. 16).

We also disagree that these criteria are synonymous with positive illusions. Although there is certainly overlap with respect to positive mood and positive views of the self, the remaining criteria we considered (e.g., productive work) are clearly discriminably different from the illusions we have identified.

Experimental Studies With College Students Are Sufficient to Yield a Model of Mental Health

Contrary to Colvin and Block's assertion, we never suggested that experimental studies with college students are a sufficient basis for building a model of mental health. As concerns our subject populations and procedures, we agree with Colvin and Block that the experimental literature with college student subjects is intrinsically limited. College students do differ from members of the general population in important ways, and the way research participants experience experimental situations is not always the way these situations are interpreted by investigators.

For these reasons, our research efforts also included the study of illusions in the "real world." For example, the work of Taylor and her associates indicates that positive illusions are linked to widely accepted indicators of mental health among individuals facing traumatic stressful events in their lives, such as AIDS, cancer, and heart disease. These findings supplement and support the experimental evidence relating illusions to well-being. Colvin and Block dismiss this evidence as "long-term fixes," but given the broad range of mental health indicators that positive illusions predict, and considering the decades or more that people live with these health-related stressors (HIV-seropositive men; cancer patients in remission; heart patients), these "fixes" appear to fix things quite well and are "long term" indeed! These findings make us wonder why Colvin and Block end their essay by questioning whether illusions influence mental health in the "real world."

The Human Mind Is Untuned to Reality Detection

Contrary to Colvin and Block's characterization of our position, we do not adopt a "pervasive, dismal, view of the human mind as being untuned to reality detection." We agree that there are ways in which people exhibit self-corrective tendencies over time (see, e.g., p. 203 of Taylor & Brown, 1988). In Taylor (1989), considerable space is devoted to reconciling mild positive illusions with the need to monitor reality effectively. Subsequent research on cognitive illusions has carried these arguments further. Among the most intriguing findings are those by Gollwitzer and Kinney (1989) and Taylor (1993). When individuals are in a deliberative mindset, attempting to make a decision, their positive illusions are quite modest; but when they are in an implemental mindset, attempting to put a decision into effect, illusions increase dramatically. Interestingly, the behavior of control subjects (i.e., those in neither mindset) is more like the illusion-prone behavior of those in an implemental mindset, a finding that is also consistent with Taylor and

Brown's (1988) point of view. This research implies that there may be windows of realism during which people suspend their illusions, at least somewhat, in favor of a more realistic vantage point.

Concluding Remarks

In conclusion, we reaffirm the basic principles of the Taylor and Brown (1988) position. We maintain that self-aggrandizing self-perceptions, an illusion of control, and unrealistic optimism are widespread in normal human thought. We further maintain that these "illusions" foster the criteria normally associated with mental health. We concur with Colvin and Block that the evidence for depressive realism is equivocal but reiterate that whether depressives are accurate or negatively biased is not directly relevant to our formulation.

We also agree with Colvin and Block that laboratory studies with college student samples provide only partial support for our theoretical position. However, we note that a substantial body of longitudinal evidence now exists that examines how people cope with intensely stressful events in their daily lives. On the independent variable side, this research provides clear evidence of illusion, and on the outcome variable side, it makes use of clearly agreed-on, well-established indicators of mental health. Thus, five years and at least 250 references later, we see little evidence to challenge our original position. Instead, the accumulating findings from adult populations facing traumatic, potentially mental health-compromising events have broadened the base of our original assertions.

How, then, do we account for Colvin and Block's bottom line: that the illusions-mental health link has yet to be convincingly demonstrated? We suggest, first, that their main quarrel is with the depressive-realism literature, not with the Taylor and Brown formulation. In this vein, we also believe that their literature review was limited. Colvin and Block consider only a portion of the references cited in our original article and only 45 articles published since our article appeared; of these 45, only 19 are directly relevant to the positive illusions framework, another 12 examine only depressive realism, and 14 are cited to address other issues raised by Colvin and Block. If one reviews only a modest amount of the literature, one is apt to find the amount of supportive literature to be modest.

In closing, we suggest that work on illusions and mental health has gone beyond the simple questions of "Do illusions exist and are they associated with mental health?" The questions we should be asking now are, "When are positive illusions most in evidence?", "Do they ever compromise mental health, and if so, when?", "Are there conditions when they damp down or disappear altogether?", and "Do such conditions address the paradox of how people can hold positive illusions about themselves, their world, and their future while still coping successfully with an environment that would seem to demand accurate appreciation of its feedback?" On these questions, recent research suggests that progress is being made.

References

Ackerman, R., & DeRubeis, R. J. (1991). Is depressive realism real? *Clinical Psychology Review, 11*, 565-584.

- Affleck, G., Tennen, H., Pfeiffer, C., & Fifield, J. (1987). Appraisals of control and predictability in adapting to a chronic disease. *Journal of Personality and Social Psychology, 53*, 273-279.
- Alloy, L. B., & Abramson, L. Y. (1988). Depressive realism: Four theoretical perspectives. In L. B. Alloy (Ed.), *Cognitive processes in depression* (pp. 223-265). New York: Guilford Press.
- Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*, 1175-1184.
- Baumeister, R. F. (1988). The optimal margin of illusion. *Journal of Clinical and Social Psychology, 8*, 176-189.
- Bjorklund, D. F., & Green, B. L. (1992). The adaptive nature of cognitive immaturity. *American Psychologist, 47*, 46-54.
- Brown, J. D. (1986). Evaluations of self and others: Self-enhancement biases in social judgments. *Social Cognition, 4*, 353-376.
- Brown, J. D. (1991). Accuracy and bias in self-knowledge. In C. R. Snyder & D. F. Forsyth (Eds.), *Handbook of social and clinical psychology: The health perspective* (pp. 158-178). Elmsford, NY: Pergamon Press.
- Brown, J. D. (1993). Self-esteem and self-evaluation: Feeling is believing. In J. Suls (Ed.), *Psychological perspectives on the self* (Vol. 4, pp. 27-58). Hillsdale, NJ: Erlbaum.
- Brown, J. D., & Gallagher, F. M. (1992). Coming to terms with failure: Private self-enhancement and public self-effacement. *Journal of Experimental Social Psychology, 28*, 3-22.
- Burish, T., Carey, M., Wallston, K., Stein, M., Jamison, R., & Lyles, J. (1984). Health locus of control and chronic disease: An external orientation may be advantageous. *Journal of Social and Clinical Psychology, 2*, 326-332.
- Buunk, B. P., Collins, R. L., Taylor, S. E., VanYperen, N. W., & Dakof, G. A. (1990). The affective consequences of social comparison: Either direction has its ups and downs. *Journal of Personality and Social Psychology, 59*, 1238-1249.
- Campbell, J. D. (1986). Similarity and uniqueness: The effects of attribute type, relevance, and individual differences on self-esteem and depression. *Journal of Personality and Social Psychology, 50*, 281-294.
- Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.
- Compton, W. C. (1992). Are positive illusions necessary for self-esteem: A research note. *Personality and Individual Differences, 13*, 1343-1344.
- Diener, E., Colvin, C. R., Pavot, W. G., & Allman, A. (1991). The psychic costs of intense positive affect. *Journal of Personality and Social Psychology, 61*, 492-503.
- Doan, B. D., & Gray, R. E. (1992). The heroic cancer patient: A critical analysis of the relationship between illusion and mental health. *Canadian Journal of Behavioural Science, 24*, 253-266.
- Dobson, K., & Franche, R. (1989). A conceptual and empirical review of the depressive realism hypothesis. *Canadian Journal of Behavioural Science, 21*, 419-433.
- Donovan, W. L., & Leavitt, L. A. (1989). Maternal self-efficacy and infant attachment: Integrating physiology, perceptions, and behavior. *Child Development, 60*, 460-472.
- Donovan, W. L., Leavitt, L. A., & Walsh, R. O. (1990). Maternal self-efficacy: Illusory control and its effect on susceptibility to learned helplessness. *Child Development, 61*, 1638-1647.
- Dunning, D., Meyerowitz, J. A., & Holzberg, A. D. (1989). Ambiguity and self-evaluation: The role of idiosyncratic trait definitions in self-serving assessments of ability. *Journal of Personality and Social Psychology, 57*, 1082-1090.
- Gollwitzer, P. M., & Kinney, R. F. (1989). Effects of deliberative and implemental mind-sets on illusion of control. *Journal of Personality and Social Psychology, 56*, 531-542.

- Haaga, D. A. F., & Stewart, B. L. (1992). Self-efficacy for recovery from a lapse after smoking cessation. *Journal of Consulting and Clinical Psychology, 60*, 24–28.
- Helgeson, V. S., & Taylor, S. E. (1993). Social comparisons and adjustment among cardiac patients. *Journal of Applied Social Psychology, 23*, 1171–1195.
- Jahoda, M. (1953). The meaning of psychological health. *Social Casework, 34*, 349.
- Jourard, S. M., & Landsman, T. (1980). *Health personality: An approach from the viewpoint of humanistic psychology* (4th ed.). New York: Macmillan.
- Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology, 32*, 311–328.
- Langer, E. J., & Brown, J. P. (1975). Control from the actor's perspective. *Canadian Journal of Behavioural Science, 24*, 267–275.
- Maslow, A. H. (1950). Self-actualizing people: A study of psychological health. *Personality, Symposium No. 1*, 11–34.
- Phillips, D. A., & Zimmerman, M. (1990). The developmental course of perceived competence and incompetence among competent children. In R. J. Sternberg & J. Kolligan (Eds.), *Competence considered* (pp. 41–67). New Haven, CT: Yale University Press.
- Reed, G. M. (1989). *Stress, coping, and psychological adaptation in a sample of gay and bisexual men with AIDS*. Unpublished doctoral dissertation, University of California, Los Angeles.
- Reed, G. M., Taylor, S. E., & Kemeny, M. E. (1993). Perceived control and psychological adjustment in gay men with AIDS. *Journal of Applied Social Psychology, 23*, 791–824.
- Reid, D. (1984). Participatory control and the chronic-illness adjustment process. In H. Lefcourt (Ed.), *Research with the locus of control construct: Extensions and limitations* (Vol. 3, pp. 361–389). San Diego, CA: Academic Press.
- Scheier, M. F., & Carver, C. S. (1985). Optimism, coping, and health: Assessment and implications of generalized outcome expectancies. *Health Psychology, 4*, 219–247.
- Scheier, M. F., Matthews, K. A., Owens, J., Magovern, G. J., Sr., Lefebvre, R. C., Abbott, R. A., & Carver, C. S. (1989). Dispositional optimism and recovery from coronary artery bypass surgery: The beneficial effects on physical and psychological well-being. *Journal of Personality and Social Psychology, 57*, 1024–1040.
- Scheier, M. F., Weintraub, J. K., & Carver, C. S. (1986). Coping with stress: Divergent strategies of optimists and pessimists. *Journal of Personality and Social Psychology, 51*, 1257–1264.
- Schiaffino, K. M., & Revenson, T. A. (1992). The role of perceived self-efficacy, perceived control, and causal attributions in adaptation to rheumatoid arthritis: Distinguishing mediator from moderator effects. *Personality and Social Psychology Bulletin, 18*, 709–718.
- Schlenker, B. R., & Miller, R. S. (1977). Egocentrism in groups: Self-serving biases or logical information processing? *Journal of Personality and Social Psychology, 35*, 755–764.
- Spacapan, S., & Thompson, S. C. (1991). Perceived control in vulnerable populations. *Journal of Social Issues, 47*(Whole No. 4).
- Sternberg, R. J., & Kolligan, J. (Eds.). (1990). *Competence considered*. New Haven, CT: Yale University Press.
- Stipek, D. (1984). Young children's performance expectations: Logical analysis or wishful thinking? In J. G. Nicholls (Ed.), *Advances in motivation and achievement: Vol. 3. The development of achievement motivation* (pp. 33–56). Greenwich, CT: JAI Press.
- Taylor, S. E. (1983). Adjustment to threatening events: A theory of cognitive adaptation. *American Psychologist, 38*, 1161–1173.
- Taylor, S. E. (1989). *Positive illusions: Creative self-deception and the healthy mind*. New York: Basic Books.
- Taylor, S. E. (1991). The asymmetrical impact of positive and negative events: The mobilization-minimization hypothesis. *Psychological Bulletin, 110*, 67–85.
- Taylor, S. E. (1993). *The effects of mindset on positive illusions*. Manuscript in preparation.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: A social psychological perspective on mental health. *Psychological Bulletin, 103*, 193–210.
- Taylor, S. E., Helgeson, V. S., Reed, G. M., & Skokan, L. A. (1991). Self-generated feelings of control and adjustment to physical illness. *Journal of Social Issues, 47*, 91–109.
- Taylor, S. E., Kemeny, M. E., Aspinwall, L. G., Schneider, S. G., Rodriguez, R., & Herbert, M. (1992). Optimism, coping, psychological distress, and high-risk sexual behavior among men at risk for acquired immunodeficiency syndrome (AIDS). *Journal of Personality and Social Psychology, 63*, 460–473.
- Taylor, S. E., Kemeny, M. E., Reed, G. M., & Aspinwall, L. G. (1991). Assault on the self: Positive illusions and adjustment to threatening events. In G. A. Goethals & J. A. Strauss (Eds.), *The self: An interdisciplinary perspective* (pp. 239–254). New York: Springer-Verlag.
- Taylor, S. E., Wood, J. V., & Lichtman, R. R. (1983). It could be worse: Selective evaluation as a response to victimization. *Journal of Social Issues, 39*, 19–40.
- Thompson, S. C. (1981). Will it hurt less if I can control it? A complex answer to a simple question. *Psychological Bulletin, 90*, 89–101.
- Thompson, S. C., Cheek, P. R., & Graham, M. A. (1988). The other side of perceived control: Disadvantages and negative effects. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health* (pp. 69–93). Newbury Park, CA: Sage.
- Thompson, S. C., Nanni, C., & Levine, A. (1993). *Secondary and consequence-related control in HIV-positive men*. Manuscript submitted for publication.
- Thompson, S. C., Sobolew-Shubin, A., Galbraith, M. E., Schwankovsky, L., & Cruzan, D. (1993). Maintaining perceptions of control: Finding perceived control in low-control circumstances. *Journal of Personality and Social Psychology, 64*, 243–304.
- Thompson, S. C., & Spacapan, S. (1991). Perceptions of control in vulnerable populations. *Journal of Social Issues, 47*, 1–21.
- Weinstein, N. D. (1993, April 24). *References on perceived invulnerability and optimistic biases about risk of future life events*. Unpublished listing.
- Wood, J. V., Taylor, S. E., & Lichtman, R. R. (1985). Social comparison in adjustment to breast cancer. *Journal of Personality and Social Psychology, 49*, 1169–1183.

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