

Review Article

Exploring the (Mal)adaptive Consequences of Self-Deceptive Enhancement: A Narrative Review

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Introduction. Despite the abundance of literature on the nature and functions of self-deceptive enhancement (SDE), there is still a lack of consensus about whether and when SDE is adaptive or maladaptive for individuals. This question of the costs and benefits of SDE is of particular clinical relevance and is the focus of the present literature review. *Method.* Building on an earlier meta-analytic review by Dufner et al. (2019), a total of 53 additional studies were identified and included in this review. *Results.* 25 of the studies supported the adaptiveness of SDE, 27 supported the maladaptiveness of SDE, and two supported mixed findings. *Discussion.* While SDE appears to be commonplace and experienced as beneficial in the short term, its longer-term negative consequences for learning, relationships, ethical behavior, and substance use recovery seem to outweigh its immediate benefits. However, these findings are limited by methodological issues related to the reliance on self-report measures, lack of consensus about the definition of SDE, and lack of clinical studies focused on SDE. Future studies should clarify the construct of SDE versus positive illusions and other related constructs and should examine SDE's role as a possible maintaining factor for psychopathology beyond substance use disorders.

1. Introduction

The tendency for people to view themselves in an unrealistically favorable light, termed self-deceptive enhancement (SDE) and closely related to the broader construct of positive illusions, is a well-documented phenomenon [1, 2]. While it is hard to ascertain the level of intentionality with which people hold such positively distorted self-views, the common assumption is that holding such views must serve an adaptive function of some kind; otherwise, it would not be such a pervasive phenomenon [3]. On the other hand, some have argued that indulging in SDE can leave us ill-equipped for dealing with reality, thus leading to maladaptive consequences [4].

Given that one of the chief aims of psychology is to alleviate psychological suffering and enhance well-being, it is important to understand whether SDE plays a role in exacerbating or relieving psychological distress and, if the

latter, under what circumstances and at what cost to overall well-being. Yet, despite decades of research and debate, including efforts to monetarily quantify the costs of SDE in areas like gambling and war [5], there remains a lack of consensus within the field about the adaptiveness or maladaptiveness of such positively distorted self-views. To our knowledge, the most recent and comprehensive effort to resolve this debate empirically was a meta-analysis by Dufner et al. [6] who examined the effects of self-enhancement (i.e., “the tendency to maintain unrealistically positive self-views”; p. 48) on personal adjustment (defined as “the proclivity to feel happy rather than sad or depressed”; p. 50) and interpersonal adjustment (defined as “the extent to which people are valued”; p. 58). Dufner et al.'s meta-analytic review was impressively thorough, and pooling effect sizes from 299 studies (totaling over 120,000 participants) were published in peer-reviewed journals anytime through November 2014. Their findings showed

a robust positive association between self-enhancement and personal adjustment, regardless of which of several common ways each of these variables was operationalized. The findings for interpersonal adjustment were more nuanced, with greater self-enhancement predicting more positive social evaluations at initial but not longer-term acquaintance, and different forms of self-enhancement predicting more positive versus negative informant evaluations in different interpersonal domains. Dufner et al.'s [6] conclusion was that self-enhancement is straightforwardly good for personal adjustment but may be a double-edged sword with regard to interpersonal adjustment.

Despite the thoroughness and rigor of Dufner et al.'s [6] meta-analysis, however, there were several important omissions. First and foremost, their narrow focus on subjective well-being and depressive symptoms as exclusive indicators of "personal adjustment" omitted a wide range of outcomes that are arguably as or more indicative of one's overall psychological functioning—such as the extent to which one learns and grows through experience, problem-solves and makes progress with respect to one's valued goals, behaves ethically with important others, engages in potentially self-destructive behavior such as alcohol and substance use, or shows resilience in the face of trauma and stress. Such outcomes form a vital part of any organismic theory of human flourishing [7], and they have all been theoretically implicated as potential casualties of SDE [8–11]. Second, they excluded clinical samples, which greatly limited the scope of evidence of the potential negative consequences of SDE and its associated clinical implications. Lastly, their meta-analysis did not include studies published after 2014. This narrative review aims to help fill these gaps, thus providing a conceptual and empirical update to the findings of Dufner et al. [6].

2. Weighing the Pros and Cons of SDE: An Updated Review of the Empirical Literature

The present review surveys and synthesizes empirical evidence of the positive and negative functional consequences of SDE, excluding those findings previously reviewed by Dufner et al. [6], to clarify the complex role of this phenomenon as it relates to psychological health and well-being and to explore its potential clinical relevance.

A literature search was conducted to identify quantitative studies that examined the adaptiveness or maladaptiveness of SDE, conceptualized as unrealistically favorable self-views. The searches were conducted on PsychINFO and PubMed using the search terms "self-deception," "self-deceptive enhancement," "self-enhancement," "positive illusions," and "positive illusory bias" in combination with terms relating to mental health and well-being (e.g., "adaptive," "adjustment," "health," "benefits of," "relationship satisfaction," "self-esteem"), psychopathology (e.g., "depression," "anxiety," "mental illness"), and maladaptiveness (i.e., "negative outcomes," "cost of") to find empirical studies from peer-reviewed journals. Contrary to Dufner et al., we excluded more distal

operationalizations of "positive illusions," such as *optimism*, *arrogance*, *self-love*, and *narcissism*, which muddy or dilute the specific construct of "positive illusions."

Studies conducted prior to February 2019 were included in this review. Studies that proposed models or mechanisms by which positive illusions are held but did not directly investigate the functional correlates or consequences of positive illusions were not included. Studies published in a language other than English for which no English translation was available were also not included. As a result, a total of 53 studies were identified and included in this review, 25 of which support the adaptiveness of SDE, 27 of which support the maladaptiveness of SDE, and two that report mixed findings.

2.1. Commonly Used Measures of SDE. The most common measure used in the reviewed studies was the Self-Deceptive Enhancement subscale of the Balanced Inventory of Desirable Responding [12]. Derived from the older Self-Deception Questionnaire [13], the BIDR-SDE consists of 20 Likert-scale items thought to capture near-universal but unflattering aspects of the human experience (e.g., "I am a completely rational person," "My first impressions about people always turn out to be right"). Lower ratings on these items are interpreted as indicating a higher rate of self-deceptive enhancement [12]. The BIDR-SDE has been shown to have satisfactory internal consistency, test-retest reliability, and scale score validity [14].

More recently developed measures of self-deception include the Self-Deception and Mystification Inventory (IAM-40) [15] and its short form, the Self-Deception Questionnaire-12 (SDQ-12) [16], which both take a more direct, face-valid approach to capturing self-deception. The IAM-40 is comprised of 40 items that represent five factors related to "pathological self-deception" (i.e., insincerity, manipulation, denial mechanisms, interest in accurate perception of reality, and mystification). For example, items include "I do not seem to learn from certain mistakes I make in my life," "It takes me a while to become aware of certain key issues in my life," and "Honestly, I am one for changing things for my own convenience." Both the IAM-40 and SDQ-12 have been shown to have good internal consistency [15, 16].

The strengths of these commonly used measures lie in their internal consistency, ease of administration, and in the case of the BIDR, widespread use. However, it is worth noting the possibility of capturing false positives for self-deception using these measures (e.g., individuals who truly possess elevated levels of a desired characteristic) as well as false negatives on face valid measures like the IAM-40 (due to self-presentation concerns).

What follows is a review of the SDE literature not included in [6] divided into evidence of adaptiveness and maladaptiveness, each organized by themes that emerged (see Table 1 for a list of all studies reviewed with specific SDE measures used in each study). We end with a discussion

TABLE 1: SDE measures and outcomes examined across studies.

Citation	Topic(s)	SDE measure(s)	Type of SDE measure(s)	Outcome(s)
Beauregard and Dunning [17]	Self-esteem, self-enhancement, contrast effect	Social comparison	Self-report	Self-reported self-esteem
Brookings and Serratelli [18]	SDE, positive illusions, subjective well-being, moral reasoning	BIDR; HSM	Self-report	Subjective well-being, self-reported moral reasoning
Brown [19]	SDE, self-other bias, self-esteem	Social comparison	Self-report	Self-reported self-esteem, self-reported self-image
Chance et al. [4]	SDE, learning, unethical behavior	Criterion-discrepancy	Performance-based	Learning
Chance et al. [20]	SDE, learning, unethical behavior	Criterion-discrepancy	Performance-based	Learning
Ferrari et al. [21]	SDE, substance abuse	BIDR-SDE	Self-report	Participation in 12-step groups
Gramzow et al. [22]	SDE, self-evaluation bias, academic performance, motivation	Criterion-discrepancy	Performance-based	Academic performance
Gudjonsson and Moore [23]	Self-deception, other deception, psychopathology	SDQ	Self-report	Psychopathology
Gupta and Bonanno [24]	SDE, response to trauma	BIDR-SDE	Self-report	Self-reported and observed distress
Gushue et al. [25]	SDE, color-blind attitudes in psychology trainees, prejudice	BIDR-SDE	Self-report	Self-reported color-blind racial attitudes
Hrgović and Hromatko [26]	SDE, depression, SES	BIDR-SDE	Self-report	Self-reported depressive symptoms
Humberg et al. [27]	SDE, self-perception, self-knowledge, psychological adjustment, interpersonal adjustment	Criterion-discrepancy	Self-report	Subjective well-being, self and peer-rated interpersonal functioning
Janner and Schwartz [28]	SDE, physical pain, coping	EPI-lie scale	Self-report	Self-reported affective pain judgments
Johnson et al. [29]	SDE, self-esteem, problem-solving	SDS; BIDR-SDE	Self-report	Problem-solving performance
Joiner et al. [30]	Positive illusions, SDE, self-other discrepancy, depression	Social comparison	Self-report	Self-reported depressive symptoms
Kim and Chiu [31]	SDE, self-effacement, depression	Criterion-discrepancy	Performance-based	Self-reported depressive symptoms
Kobayashi and Brown [32]	SDE, self-esteem, culture	Social comparison	Self-report	Self-reported self-esteem
Lamba and Nityananda [33]	SDE, other-deception, risk	Criterion-discrepancy	Performance-based	Ability to deceive others
Lee and Klein [34]	SDE, self-efficacy, learning, conscientiousness	BIDR-SDE	Self-report	Self-reported self-efficacy, learning
Lester [35]	Self-deception, personality, neuroticism	SDQ	Self-report	Self-reported neuroticism and openness
Levi and Bachar [9]	Narcissism, SDE, posttraumatic growth	BIDR-SDE	Self-report	Self-reported posttraumatic growth, self-reported PTSD symptoms, self-reported narcissism
Liu et al. [36]	SDE, positive beliefs, effect of negative feedback, learning, ethical behavior	Criterion-discrepancy	Performance-based	Learning, accurate self-awareness about performance
Lu and Chang [37]	SDE, moral self-concept, self-consciousness, altruistic behavior	BIDR-SDE	Self-report	Self-reported moral self-concept, self-reported helping intention
Lynn et al. [38]	SDE, mating success, gender differences	BIDR-SDE; Criterion-discrepancy	Self-report; performance-based	Self-reported intercourse partner rate, partner social status
Martínez-González et al. [39]	SDE, substance abuse, personality disorders	IAM	Self-report	Self-reported addiction-related beliefs and cravings, duration of abstinence

TABLE 1: Continued.

Citation	Topic(s)	SDE measure(s)	Type of SDE measure(s)	Outcome(s)
Martocchio and Judge [40]	SDE, learning, conscientiousness, self-efficacy	BIDR-SDE	Self-report	Learning, self-reported self-efficacy
Marzana et al. [41]	SDE, domestic violence, moral self-concept, moral absolutism	BIDR-SDE	Self-report	Self-reported moral self-concept, self-reported moral absolutism, domestic violence
Mijovic-Prelec and Prelec [42]	SDE, motivation, confidence, ethical behavior	Criterion-discrepancy	Performance-based	Effort, ethical behavior, self-reported confidence
Moore et al. [43]	SDE, depression, schizophrenia, awareness of illness	BIDR-SDE	Self-report	Self-reported depressive symptoms, level of awareness of illness
Murray et al. [44]	Positive illusions, idealization, relationship satisfaction, self-esteem	Criterion-discrepancy	Self-report	Self-reported relationship satisfaction, self-reported self-esteem
Norem [45]	SDE, optimism, interpersonal functioning	BIDR-SDE	Self-report	Self-reported optimism, self-reported self-esteem/self-image, self-reported social support
Otter and Egan [46]	SDE, personality, psychopathology, antisocial behavior	PDS	Self-report	Self-reported antisocial thinking, self-reported psychopathy, self-reported personality
Peterson et al. [10]	SDE, learning, problem-solving, gambling	BIDR; EPI-lie scale	Self-report	Learning, loss of money in gambling task
Peterson et al. [47]	SDE, learning	BIDR-SDE	Self-report	Learning, task performance
Pittarello et al. [48]	SDE, attention, ethical behavior	Criterion-discrepancy	Performance-based	Ethical behavior, attention
Pompili et al. [49]	SDE, hopelessness, suicide risk	BIDR-SDE	Self-report	Self-reported hopelessness
Raskin et al. [50]	Defensive self-enhancement, narcissism, self-esteem	Social comparison; DSE	Self-report	Self-reported self-esteem, self-reported grandiosity, self-reported narcissism
Reed et al. [51]	Positive illusions, SDE, physical health	Responses to HIV; LOT	Self-report	Self-reported acceptance of illness, survival time
Robinson and Ryff [52]	SDE, temporal judgments, well-being	SDQ	Self-report	Subjective well-being
Roth and Ingram [53]	SDE, depression	SDQ	Self-report	Self-reported depressive symptoms
Smith et al. [54]	Self-deception, persuasion, interpersonal functioning	Persuasion task	Performance-based	Performance on persuasion task
Starek and Keating [55]	SDE, motivation, performance in competition	SDQ	Self-report	Athletic competition success
Strom and Barone [56]	SDE, self-esteem, substance abuse	BIDR-SDE	Self-report	Beliefs about control over drinking, self-esteem
Surbey [57]	SDE, depression, cooperation, attributional styles	BIDR-SDE; SDQ	Self-report	Self-reported depressive symptoms, attributional style, intentions to cooperate
Taylor and Gollwitzer [58]	Positive illusions, mindset (deliberative vs implemental), goal pursuit, self-perception	Social comparison	Self-report	Self-reported self-esteem, self-reported mood, perceived risk
Taylor et al. [59]	SDE, physical health, stress	HSM	Self-report	Cardiovascular responses, cortisol, self-reported and clinician rated psychological health
Tester and Gleaves [60]	SDE, body image, "thin ideal"	BIDR-SDE	Self-report	Awareness and internalization of thin ideal
Tomaka et al. [61]	SDE, stress, coping	SDS	Self-report	Appraisal of threat, physiological reactivity
Vecina [11]	SDE, domestic violence, moral self-concept	BIDR-SDE	Self-report	Self-reported moral absolutism, self-reported self-acceptance, domestic violence
Wakeman et al. [62]	SDE, counterfeit competence, self-esteem, ethical behavior	Criterion-discrepancy	Performance-based	Unethical behavior, self-reported perception of competence
Werhun and Cox [63]	SDE, anxiety sensitivity, repression	BIDR-SDE	Self-report	Self-reported anxiety sensitivity, self-reported repression, self-reported coping style

TABLE 1: Continued.

Citation	Topic(s)	SDE measure(s)	Type of SDE measure(s)	Outcome(s)
Wright et al. [64]	SDE, deception, lie detection, interpersonal functioning	BIDR-SDE	Self-report	Lie detection accuracy, ability to deceive others, self-reported machiavellianism, self-reported narcissism, self-reported psychopathy
Yan and Bonanno [65]	SDE, conjugal bereavement, loneliness, interpersonal functioning	BIDR-SDE	Self-report	Clinician-rated PTSD, complicated grief, and depression; self-reported loneliness, self-reported and peer-rated interpersonal functioning

Note. BIDR-SDE = balanced inventory of desirable responding self-deceptive enhancement scale [12]; EPI lie scale = eysenck personality inventory lie scale [66]; HSM = how i see myself questionnaire [58]; IAM = self-deception and mystification inventory [15]; LOT = life orientation test [67]; PDS = paulhus deception scales [68]; responses to HIV = responses to HIV questionnaire, realistic acceptance factor [51]; SDS = Marlowe-Crowne social desirability scale [69]; SDQ = self-deception questionnaire [13].

about the implications of these findings as they relate to clinical practice.

2.2. *The Adaptiveness of Positive Illusions*

2.2.1. *Self-Image and Personal Adjustment Benefits of Positive Illusions.* Because positive illusions are inherently self-favoring, it is unsurprising that several studies found associations between SDE and positive self-image. The self-esteem buffering function of SDE appears to be particularly relevant in ambiguous or threatening situations. Robinson and Ryff [52] found that when asked to rate their past, present, and future selves on representative statements, people were most self-enhancing when thinking about their futures (a temporal state that is inherently more ambiguous than the past or present), envisioning unrealistically optimistic outcomes compared to their past or present experiences. The future self was not only rated most positively but also on happiness, self-esteem, and life satisfaction subscales. Similarly, in examining the self-protective function of SDE, both Beauregard and Dunning's [17] and Wakeman et al.'s [62] studies found that greater self-enhancement in response to a self-esteem-threatening event was associated with more positive self-evaluations relevant to the threat. More generally, SDE appears to play a role in the maintenance of self-esteem and adjustment. Several studies [17, 19, 32] found that individuals with self-reported high self-esteem demonstrated a greater tendency to self-enhance in the form of self-other bias (i.e., the tendency to describe oneself as better than others) than individuals with low self-esteem. In line with Dufner et al.'s [6] findings, Humberg et al. [27] found that individuals with self-favoring views of their intelligence and vocabulary were also better intrapersonally and adjusted; however, in terms of interpersonal adjustment, outcomes associated with SDE were mixed (see *Social Costs of SDE* section). SDE has also been linked to confidence, but this effect peaked at moderate levels of SDE, and those with higher SDE actually experienced a decrease in confidence following disconfirming feedback compared to those with low SDE who experienced no change in confidence following confirming or disconfirming feedback [42].

2.2.2. *SDE and Coping with Trauma.* It has been shown that higher self-enhancement is associated with significantly less self-reported distress in response to potentially traumatic events [24] and overall better adjustment in response to the death of a spouse [65]. In both studies, high self-enhancers were rated as better copers in anonymous ratings by their friends or relatives.

2.2.3. *SDE as a Protective Factor against Psychopathology.* The phenomenon of depressive realism was originally demonstrated by Alloy and Abramson [70] wherein depressed individuals were shown to make more accurate contingency judgments compared to nondepressed individuals who made positively biased contingency

judgments, leading some to take these findings as indirect support for the adaptive, mood-boosting benefits of positive illusions. Supporting this logic, several studies have found and replicated a negative association between SDE and depressive symptomatology [26, 43, 49, 53, 57]. Looking more specifically at body image, Tester and Gleaves [60] found that SDE moderated the relationship between awareness and internalization of the thin ideal among female undergraduate students. Based on these findings, they suggested that high levels of SDE may serve as a protective factor against internalization of sociocultural pressures to be thin, potentially protecting against the development of eating disorders.

2.2.4. *Social Benefits of SDE.* The socially adaptive functions of positive illusions were a prominent theme within the literature reviewed, particularly from an evolutionary psychology perspective. Evolutionary psychologists view self-deception as an adaptive advantage in that it enables effective deception of others, thereby protecting the self-deceiver from potential social and physical costs of unconvincing attempts at deception and conferring him with the potential social and material benefits of successful lying [3]. Supporting this evolutionary psychology perspective, Lamba and Nityananda [33] found that high self-enhancers were overrated in their academic performance by peers (as determined by individuals' actual grade/rank versus academic performance predicted by peers), whereas underconfident individuals were judged by their peers to be worse off academically than they actually were. (However, they note the potential negative consequences for systems and institutions that reward the overconfidence of high self-enhancers, who are likely more risk-prone.) Similarly, Smith et al. [54] found an association between SDE and the deception of others using a persuasion task to capture self-deception and deception. They found that people who were financially motivated to persuade another person in a particular direction later demonstrated a self-deceptive information processing bias consistent with their persuasive goals (i.e., participants who were told to persuade others of a target's likeability later found the target more likable than those whose goal was to persuade others of his unlikability) [54]. Additionally, they found that this processing bias was a significant predictor of persuasiveness, in line with the evolutionary hypothesis described above.

Another social benefit of SDE posited in the evolutionary psychology literature is its hypothesized role in facilitating prosocial behavior. Otter and Egan [46] found that SDE (as measured by the BIDR-SDE) was negatively associated with neuroticism and secondary psychopathy and positively associated with openness. Additionally, in their factor analysis of all measures in the study, they found that SDE loaded on the prosocial dimension of "careful cooperation" rather than the antisocial dimension of "careless noncooperation." Thus, SDE, in that it enables the maintenance of a positive self-image, may act as a protective factor against antisocial thinking and behavior (which are more likely to be consequences of more accurate, negative self-appraisals) [46].

Relatedly, Lu and Chang [37] found a positive association between SDE and moral self-concept, which was moderated by private self-consciousness. They concluded that these findings support the role of SDE in helping to dampen self-interests in favor of more altruistic strivings to maintain a moral self-concept.

There also appear to be potential romantic relationship benefits of SDE. For example, it has been shown that SDE predicts intercourse-partner rate and partner status [38]. Additionally, there is evidence that individuals see their partners in a more positive light than their partners see themselves and that these idealized constructions predict greater relationship satisfaction [44]. In other words, individuals are happier in their relationships when they idealize their partners and their partners idealize them, suggesting that positive illusion may be a critical feature of satisfying romantic relationships.

2.2.5. Goal-Pursuit Benefits of SDE. Taylor and Gollwitzer [58] investigated the effects of mindset (i.e., deliberative vs implemental) on positive illusions and goal-pursuit and found that postdecisional participants (i.e., those in an implemental mindset who had already selected a goal to pursue) focused their thoughts on issues of implementation and reflected much less on pros and cons than did predecisional participants (i.e., those in the deliberative mindset who had not yet selected a goal). Furthermore, these implemental mindset participants showed a clear preference for thinking about the pros. Taylor and Gollwitzer [58] concluded that just as the realism that characterizes the deliberative mindset is likely adaptive in helping people carefully make decisions about their lives, the positive bias that characterizes the postdecisional implemental mindset is likely adaptive in helping people maintain the motivation and effort necessary to achieve their goals. Similarly, Starek and Keating [55] found that swimmers who successfully qualified for a national championship engaged in more SDE, suggesting that SDE may enhance motivation and performance during competition.

2.2.6. Physical Health Benefits of SDE. Another theme within the literature is the physiological correlates of SDE. It has been shown that higher SDE is associated with lower cardiovascular responses to stress, lower baseline cortisol levels, faster cardiovascular recovery [59], less psychophysiological reactivity to novel tasks [61], and lower affective pain judgments of electric shocks [28]. The association between higher SDE and lower cortisol levels (which reflect chronic functioning of the hypothalamic-pituitary-adrenal (HPA) axis, the central stress response system) was mediated by greater psychological resources, like optimism and self-esteem [59], suggesting that positive illusions, by fostering psychological resources, may, in turn, foster lower HPA axis activity. Additionally, as possible indirect evidence of the health benefits of positive illusions, Reed et al. [51] found that realistic acceptance of illness

among men with AIDS significantly predicted decreased survival time.

2.3. The Maladaptiveness of SDE

2.3.1. Learning and Problem-Solving Costs of SDE. Given that SDE or positive illusions involve a distortion or intentional neglect of undesirable information, it is not difficult to see how this might interfere with learning. For example, Gramzow et al. [22] found that positive illusions about one's GPA were negatively associated with actual future academic performance. Similarly, several studies [20, 36, 71] using a clever experimental design demonstrated similar negative consequences of SDE for learning, such that individuals who had taken a test with a visible answer key predicted inflated test scores on a subsequent test where no answer key would be visible. In the absence of SDE, the researchers reasoned that there would be no difference in predicted scores between the experimental group and control group (who had no answer key) because the experimental group would accurately take into account the boost in initial performance from the answer key that would no longer be available on the future test. However, as predicted, SDE did occur among the "answer key" group. Initial test scores were higher for this group, and individuals in this group also expected to perform better on the second test despite knowing they would not have an answer key. There was also a significant interaction between dispositional SDE and the experimental manipulation, such that dispositional self-enhancers were especially prone to taking credit for their answer-key-inflated performance [20]. Furthermore, it has been shown that monetary incentives for accurate predictions of performance on the second test do not temper SDE [4], and though corrective feedback can briefly lessen SDE [36], it can be easily reinstated [71].

In their investigation of the relationship between conscientiousness and learning in employee training, Martocchio and Judge [40] found that conscientious people tended to engage in SDE more than people low on conscientiousness and that SDE was negatively associated with learning. More specifically, self-enhancers learned less than individuals who tended not to engage in SDE. Similarly, Lee and Klein [34] found that SDE was negatively associated with learning early in training; however, this negative effect dissipated over the 10-week training period. This trend may be due to the fact that the longer people are in training, the more opportunities they have to be confronted with consistent, corrective feedback (unlike the brief corrective provided in the previously mentioned studies), and the more challenging it becomes to maintain positive illusions.

Using a gambling card-playing task, Peterson et al. [10] also demonstrated the negative effect of SDE on learning. They found that high self-enhancers showed greater response perseveration, often playing more cards and losing more money, despite the evidence of error and monetary loss. Furthermore, in their analysis of individuals who played until the end of the gambling task (i.e., played all their cards thereby losing all of their money), Peterson et al. [10] found that this group scored significantly higher on both SDE

measures used in the study. Similarly, Johnson et al. [29] found that after failure feedback on a bogus IQ test followed by solvable problem-solving tasks, greater SDE predicted worse problem-solving and greater hostility, controlling for the positive effects of self-esteem. Lastly, in their investigation of SDE and information processing, Peterson et al. [47] found that SDE had an adverse effect on task performance. Using a card-identifying task in which participants were shown and asked to identify familiar and anomalous playing cards, they found that while both low and high self-enhancers identified the familiar cards rapidly and equally proficiently, high self-enhancers took more than twice as many trials to identify the anomalous cards. Taken together, it seems that SDE, in that it involves discounting, distorting, or ignoring pertinent information that should be taken into account for effective problem-solving, can impede learning and performance.

2.3.2. Social Costs of SDE. Though SDE can be socially adaptive (see previous section social benefits of SDE), there is also evidence of its negative social consequences. For example, Humberg et al. [27] found that individuals with an inflated view of their reasoning abilities were viewed more negatively by peers. Similarly, Norem [45] found that defensive self-enhancers were viewed by their own friends as significantly less modest, significantly less emotionally close to them, and marginally less likable than the nondefensive self-enhancers. Additionally, defensive self-enhancers perceived receiving less companionship and emotional support from their close friends. There is also evidence that self-enhancers are viewed as less credible when telling both truths and lies [64], contradicting findings put forth by evolutionary psychologists that self-deception enables deception of others [33, 54].

2.3.3. SDE and Personality. Self-deception has been linked to neuroticism [35] and narcissism and PTSD symptoms [9, 50].

2.3.4. Moral and Ethical Costs of SDE. It appears that positive illusions also have broader moral and ethical costs beyond just psychological and interpersonal consequences. For example, using a card identification task in which there was a monetary incentive and the possibility to cheat to increase earnings, Pittarello et al. [48] found that while cheating, participants allocated significantly less attention (operationalized using eye tracking) to undesirable information than when they behaved honestly. Pittarello et al. [48] concluded that when dishonesty is financially incentivized, turning attention away from undesirable information can be a self-deceptive strategy that enables people to serve their own self-interest while maintaining a positive self-image. Put differently, SDE by means of attention diversion may enable unethical behavior, particularly where money is concerned. Similarly, Brookings and Serratelli [18] found that positive illusions, though they were positively associated with self-reported

well-being, were negatively associated with moral reasoning.

(1) SDE and Violence. SDE may also play a role in enabling individuals to commit domestic violence while maintaining a positive sense of self. Marzana et al. [41] found that SDE (as measured by the SDE scale) fully mediated the relationship between moral absolutism (i.e., the belief in fixed, objective standards of right and wrong) and moral self-concept among men convicted of domestic violence. The more these men felt confident in their moral beliefs, the more they engaged in SDE, thereby maintaining their moral self-concept. Similarly, Vecina [11] found that men convicted of violence against a partner had high perceptions of their own morality, high levels of psychological well-being, high levels of moral absolutism, high levels of SDE, and high levels of sexism.

(2) SDE and Racism. One study within the literature under review highlighted a crucial consequence of SDE that is particularly relevant to the practice of psychotherapy. Gushue et al. [25] in their investigation of color-blind “postracial” attitudes (which negate the validity and reality of racism and its negative consequences) among white psychology trainees found that color-blind attitudes were associated with SDE. Given the sociopolitical climate of the past few years, which has included the rise in protests against police violence towards black and brown communities, increased anti-Asian discrimination and violence in the wake of the COVID-19 pandemic and increased public discourse around confronting racism on individual and systemic levels, these findings are particularly salient and suggest that addressing SDE as it relates to racial attitudes should be a crucial part of training within the field of psychology in order to support culturally sensitive, competent, and inclusive care for individuals from diverse racial and ethnic backgrounds.

2.3.5. SDE and Psychopathology. What is perhaps the most compelling evidence of the maladaptive nature of positive illusions comes from the clinical literature. Regarding psychopathology, SDE has been most extensively studied in the context of substance abuse disorders. For example, Strom and Barone [56] examined individuals in various stages of recovery and found that active abusers’ self-reported positive beliefs about drinking control and self-esteem were associated with higher SDE. Additionally, early and late recoveries were both associated with significantly lower SDE. Similarly, Martínez-González et al. [39] found that substance dependence was associated with elevated scores of SDE and that SDE was negatively associated with duration of abstinence. They also found that substance-dependent individuals with comorbid personality disorders displayed greater levels of SDE compared to individuals without a dual diagnosis, suggesting that SDE may be associated with more severe or persistent pathology. In a similar vein, Ferrari et al. [21] found that high self-enhancers reported using drugs (but not alcohol) on significantly more days than low self-enhancers did.

Furthermore, they found that attending 12-step meetings was a significant predictor of less SDE and that high self-enhancers attended significantly fewer 12-step meetings than low self-deceivers. They concluded that 12-step programs, with their focus on reducing denial and self-deception and increasing honesty, may be a crucial part of recovery. Taken together, it seems that SDE may play a role in the maintenance of substance use disorders.

Of note, although research examining the role of positive illusions in psychopathology has largely been limited to the substance use domain, there is evidence of associations between SDE and other forms of mental illness. Specifically, Gudjonsson and Moore [23] investigated self-deception and other deception among patients at a maximum-security hospital and medium-security unit and found that SDE was associated with acute mental illness diagnoses as opposed to personality disorder diagnoses. Additionally, there is evidence that positive illusions are associated with higher depressive symptoms [30] and greater vulnerability to depression [31].

2.3.6. SDE and Physical Health. Werhun and Cox [63] hypothesized that extremely low self-reported anxiety sensitivity (AS) may not actually represent “normal” psychological health but rather maladaptive defensive coping. In support of this hypothesis, they found that SDE was negatively associated with AS and that when presented with a hypothetical health problem, individuals with low AS were less likely to choose a task-oriented response and more likely to choose denial and self-deceptive responses compared to mid- and high-AS groups. In other words, rather than directly facing and dealing with a potential health problem, those with low AS were more likely to choose ego-defense strategies (denial) and ego-enhancement strategies (SDE).

3. Conclusions, Hypotheses, and Future Directions

There is substantial evidence supporting both sides of the argument about the consequences of SDE. On the one hand, SDE appears to help individuals maintain a positive self-image and high self-esteem, thereby facilitating a subjective experience of resilience in the face of physical and emotional discomfort, uncertainty, negative feedback, and even traumatic events. Additionally, SDE is negatively correlated with self-reported depressive symptomatology, suggesting a mood-buffering effect of SDE. On the other hand, despite these apparent benefits, there are noteworthy negative consequences of SDE. In particular, SDE that involves distortion or neglect of certain undesirable aspects of reality appears to hamper logical information processing and learning. While SDE may foster temporary protection from self-esteem threats and negative affect, ultimately, it appears to block accurate appraisal of situations and subsequent response modulation, potentially hindering genuine goal attainment and personal improvement. Furthermore, SDE appears to play a role in enabling unethical, even violent

behavior and has been implicated as a maintaining factor in substance abuse disorders.

How can we understand these apparently contradictory findings, particularly in contrast to the more positive verdict that appeared to emerge from Dufner et al.’s [6] meta-analysis? One plausible explanation is that, while SDE appears beneficial in the short term, it leads to negative consequences in the long term. Unlike the many cross-sectional studies showing positive associations between SDE and well-being, many of the studies that included a longitudinal component found negative associations between SDE and longer-term functional outcomes, such as learning [20] and substance use treatment attendance and recovery [21]. Thus, it is possible that if longitudinal outcome data had been collected in studies showing positive concurrent associations between SDE and well-being, these associations may have reversed over time, as was indeed the case for the interpersonal adjustment outcomes reviewed in Dufner et al.’s [6] meta-analysis.

Another likely explanation has to do with our inclusion of studies assessing performance-based or behavioral outcomes of SDE, which were omitted from Dufner et al.’s [6] meta-analysis. These relatively objective outcomes, such as problem-solving [29], learning from feedback [10, 20, 47, 71], and perpetration of domestic violence [11, 41], were disproportionately more likely to show negative associations with SDE than were the more subjective, largely self-reported outcomes captured by Dufner et al.’s “personal adjustment” construct. Thus, we suggest that studies finding positive associations between SDE and self-reported desirable outcomes such as self-esteem and emotional well-being do not necessarily corroborate the benefits of SDE but instead may reflect the tendency of high self-enhancers to deceive themselves and others about their actual level of well-being.

The findings of this review should be considered in light of several limitations. First, the widespread use of self-report measures to assess both SDE and the associated outcomes in many of the studies reviewed is inherently problematic for several reasons. First, it may be that the self-report SDE measures capture a mix of truthful (even if mistaken) and truth-distorting self-assessments, such that an overall higher score on these measures does not accurately demonstrate higher levels of SDE. Second, those who self-enhance on an SDE measure are also likely to underreport experiences, symptoms, or personal qualities that are negatively valenced, and vice versa. In this light, it is possible that our current understanding of SDE greatly underestimates its negative consequences. Additionally, the majority of studies included in this review involved samples of college students, which limits the generalizability of findings to a circumscribed age, racial, and socioeconomic demographic.

Despite these limitations, based on the literature reviewed, self-deceptive enhancement is a compelling construct that deserves further investigation in order to clarify its clinical implications. Further clinical research is necessary to examine whether SDE plays a maintaining role in other forms of psychopathology beyond substance use

disorders. To fully capture and understand the phenomenon of self-deception, future research should explore not only positively biased forms of self-deception but also the possibility of negatively biased forms of self-deception (see [8], for examples). Additionally, further research is necessary to more clearly delineate the constructs of self-deception and positive illusions and situate them with respect to related constructs (e.g., cognitive biases and defense mechanisms). Given the problematic nature of studying SDE using self-report measures, future studies should include clinician-rated measures of psychopathology. Future research should also focus on developing and validating observer-based (e.g., clinician-coded) and indirect or implicit measures of SDE so that clinicians can better identify this distortion as it occurs in their patients.

The negative consequences of SDE and the possibility that it acts as a maintaining factor for psychopathology have important treatment implications. Developing interventions that specifically target SDE (e.g., self-honesty intervention, Gorlin [72], 2023) may be an important new clinical route to improve psychotherapy's effectiveness across diverse patient demographics and diagnoses, particularly in treating chronic or treatment-resistant cases. Psychoeducation about SDE that normalizes the allure of the short-term benefits while highlighting the long-term costs may be an important therapeutic intervention for particularly ambivalent or treatment-resistant patients. There is convergence across many psychotherapeutic orientations around the importance of increasing clients' accurate awareness of their inner worlds and the reality of the external world that shapes them. This awareness of and ability to face painful truths is at the heart of therapeutic change; however, cultivating and maintaining the motivation to do the hard work of ongoing, honest self-examination is also often among the most challenging parts of therapy. Consequently, it is not difficult to understand why clients engage in self-deceptive defense mechanisms over the course of therapy [73]. However, self-deceptive strategies (whether engaged consciously or unconsciously), though they provide momentary and understandably desirable relief, obscure reality and therefore the ability to achieve lasting change. Thus, it is possible that incorporating interventions targeted at the reduction of SDE over the course of treatment may support better mental health outcomes.

Lastly, it is important to take into account cultural considerations related to SDE. Given the relative homogeneity of participant samples in the reviewed positive illusion/self-deception literature, future research should include more diverse samples. Furthermore, while there have been some findings supporting higher levels of self-deception among minority groups [23], these results should be interpreted with caution given differences in cultural attitudes about self-presentation and the potential discrimination that minority groups face, which may make positively biased self-beliefs a helpful corrective against such negative systemic biases. In summary, researchers and clinicians would do well to reconsider whether the subjective, short-term enticement of SDE is outweighed by its objective, longer-term costs to human flourishing.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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