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# Mental Control

## 26 Thought Suppression and Psychopathology

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There are very few theories of psychopathology that trace all disorders of the mind to a single common cause. The demon-possession theory gave it a good try for a while, at least in the medieval popular mind. And later, as psychology developed, theorists with big ideas made their own suggestions for unifying themes: Freud and repression, Adler and inferiority, Rogers and low self-regard, Skinner and contingencies of reinforcement. Students of introductory psychology can name these and more, and can also note that in every case there are major exceptions to these one-factor theories. Something as miraculously complex as the human mind is susceptible to potential pathological influences with similar complexity, so theories suggesting a common theme will always fall prey to the criticism of oversimplification. Still, we plan in this chapter to make the same darn mistake—by examining the potential role of thought suppression as a causal factor in, if not all, then a wide range of psychological disorders.

Why would we stumble off to perform a fool's errand? Our attraction to this idea comes from a basic realization about mental disorder. The inner life of disorder is often painful, unpleasant, a focus of suffering—and thus will commonly motivate thought suppression as a *reaction*. People typically do not want to think about their sorrows, their symptoms, their fears, their abnormalities, the voices in their heads—they hope to avoid their psychopathological mental states. This reaction, then, could be very broad, a standard and stereotypical response to mental turmoil in every form of psychopathology in which a person remains conscious and experiences distress. And while the suppression of thoughts may seem to be an effective solution, this strategy can have profound and unexpected consequences in the unwanted magnification of the psychological influences of the suppressed thought. The unifying feature of this approach to psychopathology, then, is not that thought suppression might somehow *initiate* a significant range of the psychological

disorders, but rather that it may expand their psychological damage, prolong their course, and make them more resistant to treatment. The unifying theme of thought suppression is not that it is a general cause of disorder, but that it is a general human response to distress that may seriously complicate any disorder that arises.

This chapter begins by describing the phenomena of suppression and considering how suppression might complicate disorders. Next, we review the evidence to date for a role of suppression in various forms of mood, anxiety, and impulsive disorders. We then consider recent theoretical proposals regarding a potential role of thought suppression in psychosis. Throughout, we illustrate how suppression is differentially implicated in distinct forms of psychopathology, in some instances potentially as an etiological mechanism, but more often as a disorder-complicating moderator of psychopathology. More broadly, suppression is characterized in this chapter as a product of avoidance motivation that has detrimental consequences for psychological functioning and well-being.

### SUPPRESSION OF UNWANTED THOUGHTS

The idea that trying to keep things out of mind can be a factor in psychopathology has always been a central tenet in Freudian psychoanalysis and in psychodynamic psychology. Although there remains significant debate on this issue (Erdelyi, 2006), the predominant sentiment underlying this approach has been that attempts to stop thinking can be successful—that people can indeed control their minds (Wegner, Eich, & Bjork, 1994). In contrast to this presumption, the initial experimental studies of thought suppression revealed that suppression simply does not work (Wegner, Schneider, Carter, & White, 1987). People cannot keep the thought of a white bear out of mind for 5 minutes, let alone suppress something for a lifetime. The fact is, though, that people often try not to think about things despite the futility of the enterprise.

Thought suppression is one of various strategies that people may use to manage or control thoughts that trigger unpleasant emotions. Conceptualized this way, it is a prime cognitive exemplar of avoidance motivation. What is most critical to pathology of intrusive thoughts is that this strategy is often unsustainable, especially in the face of competing cognitive demands. Moreover, when the strategy fails, the unwanted thoughts often do not return to their initial baseline level and instead escalate to a much higher level of frequency. According to the ironic process theory of mental control (Wegner, 1994), this occurs because mental control involves processes that usually work together to effect thought suppression, but that can fail and yield intrusions under conditions of high mental load. The

theory posits an effortful and conscious operating process that diverts attention away from unwanted thoughts, and an effortless and unconscious ironic monitoring process that both maintains vigilance for occurrences in awareness of the unwanted thought, and triggers further action of the operating process if the unwanted thought appears in awareness. These two processes work hand in hand to ensure that unwanted thoughts remain outside of awareness. Ironically, however, by maintaining vigilance for the unwanted thought, the monitoring system helps assure that the unwanted thought never becomes dormant.

Research has demonstrated two characteristics of suppressed thoughts—the ease of return to suppressed thoughts, and the difficulty of escape from suppressed thoughts. In the original thought suppression experiment, Wegner et al. (1987) found evidence for ease of return—after a period of thought suppression, people instructed to discontinue suppression of the thought and instead to begin thinking about it reported more returns of the thought than occurred without prior suppression. Subsequent studies revealed that this effect is particularly likely to occur under conditions of mental load. The ease of return illustrated by this “rebound effect” has since been observed repeatedly (see reviews by Abramowitz, Tolin, & Street, 2001; Rassin, 2005; Wenzlaff & Wegner, 2000). Common to these studies with clinical and nonclinical populations is the finding that the unwanted thought is faster to return to consciousness while it is being actively suppressed.

Studies examining the phenomenon of hyperaccessibility in interference effects have shown evidence for the difficulty of escape from suppressed thoughts. Wegner and Erber (1992) found that people suppressing a thought under cognitive load showed interference with the task of color-naming in a modified Stroop (1935) paradigm. Remarkably, this interference was even greater than the interference found when people were concentrating on the thought under load. These results imply that people could not disengage attention to escape from the unwanted thought, and this difficulty became more pronounced with the imposition of cognitive load. This effect, too, has been observed repeatedly (Arndt, Greenberg, Solomon, Pyszczynski, & Simon, 1997; Klein, 2007; Newman, Duff, & Baumeister, 1997; Page, Locke, & Trio, 2005).

The ease of return and difficulty of escape from unwanted thoughts may underlie a certain asymmetry in the way unwanted thoughts are linked to other thoughts—the remarkable phenomenon that we find ourselves being reminded of a particular unwanted thought by most everything that comes to mind, but the idea itself seems to remind us of nothing more than our desire to eliminate it from consciousness. This unusual asymmetry in the way unwanted thoughts are linked to other thoughts was

examined in a recent study (Najmi & Wegner, in press). Participants who were asked to suppress a thought or to concentrate on it completed a task assessing the influence of priming on reaction time to word/nonword judgments (associative priming lexical decision task). Results indicated that suppression under cognitive load produced a sort of asymmetric priming. Priming with the associate of a suppressed word speeded reaction time to the suppressed word, but priming with a suppressed word did not speed reaction time to associated words. This suggests that suppression induces an unusual form of cognitive accessibility in which movement of activation toward the suppressed thought from associates is facilitated but movement of activation away from the suppressed thought to associates is undermined. Thus, suppression of an unwanted thought ironically increases its return while precluding other related thoughts from entering into awareness.

## SUPPRESSION AND PSYCHOPATHOLOGY

Early theories of psychopathology portrayed a state of mind much like the one produced by simple instructions to suppress. These theories described psychopathological states in terms of the *idée fixe*—a thought that intrudes repeatedly upon consciousness and becomes difficult to control—and pointed to such fixed ideas as the very basis of mental disorder (Janet, 1894; Ribot, 1881). In presenting William James' views on psychopathology, Taylor (1984) provides a list of "exceptional mental states" characterized by an *idée fixe*, highlighting the notion that characteristic of many emotional disorders is perseverative thinking of aversive thoughts and attempted control of these thoughts in the service of emotion regulation.

Ironically, it may be avoidance of the thoughts that fuels their persistence. James suggests that this "power of the buried idea" may underlie symptoms of hysteria, while intolerance and avoidance of uncertainty (*folie du doute* or doubting mania) may mark the beginnings of obsessive thinking (Taylor, 1984). Although theories of psychopathology have grown more sophisticated than this, there remains evidence that unwanted intrusive thoughts characterize a range of emotional disorders (Clark, 2005). Intrusive thoughts are typically experienced as ego-dystonic and unacceptable, they cause distress, and interrupt current mental activity (Rachman, 1978, 1981). The drive to eliminate thoughts from consciousness may create the precise formula for turning the ordinary experience of unwanted thoughts into the painful experience of persistent intrusions that characterize many forms of psychopathology, from obsessive-compulsive disorder (OCD) and posttraumatic stress disorder (PTSD) to depression and beyond (Clark, 2005).

It is often the case that overwhelming intrusions have no obvious beginnings. For example, in the case of patients with OCD, it is nearly impossible to identify when the unwanted thought of contamination or blasphemy first gained acute emotional import. One approach to this problem is to suggest that suppression itself is the cause of subsequent obsession. This idea was developed in a theory of *synthetic obsessions* (Wegner, 1989) that oriented much of the early empirical investigation of thought suppression in psychopathology toward testing the idea that suppression failure was a primary etiological process in certain forms of psychopathology. This possibility remains open, as little research assessing the causal role of thought suppression in OCD and other forms of psychopathology has been reported as yet (but see Wegner & Zanakos, 1994; Wenzlaff, 2005).

In focusing our approach in this chapter on the potential for thought suppression to play a role across a wide range of psychopathologies, we will set aside for now the specific analysis of a potential etiological role for suppression in any one disorder. Rather, we will examine the associations that have been observed between psychological disorders and various indicators of thought suppression tendencies and effectiveness. A review by Wenzlaff and Wegner (2000) presented empirical findings related to the suppression of intrusive thoughts in PTSD, OCD, and depression. In the sections that follow, we expand this earlier review to incorporate more recent findings in these areas and in a wider array of disorders.

## SUPPRESSION AND POSTTRAUMATIC STRESS DISORDER

Two of the primary characteristics of PTSD—unwanted intrusions of traumatic recollections and avoidance of all things associated with the trauma—suggest that individuals with PTSD are motivated to suppress trauma-related thoughts. Most empirical investigations of the effects of thought suppression in PTSD indicate that the disorder is characterized by a bias in the ability to suppress trauma-related thoughts. Shipherd and Beck (1999) examined the effects of instructed suppression of rape-related thoughts in female sexual assault survivors with PTSD and those without PTSD following the sexual assault. They found that trauma survivors with PTSD experienced a postsuppression rebound in the frequency of rape-related thoughts, whereas trauma survivors without PTSD did not experience a rebound.

A more recent study (Shipherd & Beck, 2005) replicated these findings in a follow-up investigation of the deliberate suppression of trauma-related thoughts in survivors of motor vehicle accidents with and without PTSD. These



suppress an obsessional thought is essentially a "nonintervention" since individuals in the nonsuppression control group are being asked to act against what they would naturally do. Purdon, Rowa, and Antony (2005) found that individuals with OCD exerted effort to suppress their obsessional thought despite explicit instructions not to suppress, and that this suppression effort was correlated with their perceived urgency to control the thought. This may explain the absence of suppression rebound or enhancement effects in the studies of instructed suppression of obsessional thoughts conducted with clinical samples of OCD patients (Janeck & Calamari, 1999; Purdon et al., 2005). Tolin et al. (2002b) argue that if individuals with OCD have general deficits in their ability to control thoughts, this will be manifested in their ability to control neutral thoughts. Moreover, this design overcomes the problem of spontaneous suppression of obsessional thoughts in the OCD control group. Consistent with their hypothesis, they found that individuals with OCD had higher occurrences of a neutral target thought after suppressing compared to baseline.

The initial observations of thought suppression suggested that it is not very successful (Wegner et al., 1987). What does this mean for the role of suppression in OCD if we conclude that the rebound or enhancement effect is not experienced by the majority of OCD subjects instructed to suppress their obsessions? One possibility is that suppression works temporarily. If so, it serves as a neutralization strategy; that is, it terminates exposure to the obsession thereby curtailing habituation of the anxiety associated with the obsession (Roemer & Borkovec, 1994) and preventing disconfirmation of the perceived negative consequences of the obsession. Another possibility is that suppression fails. Failed suppression can serve to increase the salience of the unwanted thought and the need to control it in order to avoid the perceived negative consequences. Failure of suppression is associated with worse mood, and faulty appraisals of suppression failure may lead to greater effort to suppress (Purdon et al., 2005). Conceptualized this way, it may well be the case that repeated attempts at suppression serve to exacerbate an already existent obsessional state.

Faulty appraisals of the failure of suppression and faulty beliefs about the need to control thoughts and about the controllability of thoughts may be both causal precursors of the obsessional state as well as complicating factors that further aggravate it. Purdon and Clark (2000) have argued that certain individuals hold preexisting metacognitive beliefs that result in thought suppression, namely, that unwanted thoughts can and should be controlled and that intrusive thoughts are the product of an

unhealthy mind. For example, Tolin et al. (2002a) observed that OCD patients were more likely than anxious and nonanxious controls to attribute a failure of thought suppression to internal, negative attributions (e.g., "I am mentally weak"). These beliefs may predispose the individual to exert greater control over thoughts, and consequently, to suffer the counterproductive effects of mental control. Indeed, results from studies using correlational designs such as path analysis (Smári & Hólmsteinsson, 2001) and structural equation modeling (Rassin, Muris, Schmidt, & Merckelbach, 2000) suggest that negative thought appraisal predicts suppression, which in turn predicts OCD symptoms.

## SUPPRESSION AND DEPRESSION

Research investigating the role of thought suppression in depression has yielded two primary inferences: One is the fairly robust observation that the motivated avoidance of depressotypic intrusions results in a rebound of these cognitions (Wenzlaff, Wegner, & Roper, 1988), and the other is the suggestion that the suppression of depressive thoughts may mask a cognitive vulnerability to depression (Wenzlaff & Bates, 1998).

According to Wenzlaff (2005) there are a number of reasons why depressed individuals are prone to experiencing the suppression-induced rebound of depressotypic intrusions. Consistent with the idea of a depressive schema underlying the disorder that makes depressotypic information more accessible (Beck, 1967), depressed individuals are likely to undertake suppression by choosing distracters that are mood congruent and hence closely linked to their suppression target (Wenzlaff et al., 1988). This finding has been replicated reliably in studies of suppression in dysphoric individuals (Conway, Howell, & Giannopoulos, 1991; Howell & Conway, 1992; Renaud & McConnell, 2002; Wenzlaff, Wegner, & Klein, 1991). A recent study extended these findings to the domain of autobiographical memory (Dalgleish & Yiend, 2006). Results showed that in dysphoric individuals, the suppression of a negative memory resulted in increased activation of other negative information (presumably distracters used in order to achieve suppression), thereby rendering negative information more accessible on a subsequent autobiographical-memory retrieval task.

Moreover, depressed mood may deplete cognitive resources needed for an effortful cognitive process such as suppression. Hartlage, Alloy, Vázquez, and Dykman (1993) have observed that depression interferes mostly with effortful processing and only minimally with automatic processing. Thus, ironic process theory (Wegner,

1994) predicts that suppression undertaken during a depressed mood would impair functioning of the effortful operating process (which diverts attention away from the target thought) and leave unhindered the functioning of the automatic monitoring process (which maintains vigilance for the target thought), thereby increasing accessibility of the target thought.

The hypothesis that suppression conceals a cognitive vulnerability to depression was proposed by Wenzlaff and Bates (1998) and tested in a series of studies with individuals at high risk for depression (e.g., individuals remitted from depression). Theories of cognitive vulnerability to depression assert that depressive schemata may be latent but can be activated by conditions similar to those experiences that were initially responsible for creation of the schemata (Beck, Rush, Shaw, & Emery, 1979). Other models based on Bower's (1987) associative network model (Miranda & Gross, 1997) predict that because depressive schemata are likely to develop in a negative emotional context, they should be associated with a negative mood in memory. When the individual is no longer experiencing the negative mood, the associated depressotypic cognitions should be less accessible, thereby allowing them to become dormant or latent. It appears, however, that studies aimed at revealing negative schemata in remitted depressed individuals using methods of mood induction are, at best, equivocal (Ingram, Miranda, & Segal, 1998). According to Wenzlaff and Bates (1998), one possible reason why such attempts at revealing depressive schemata fail may be that remitted depressed individuals are trying to suppress the very thoughts investigators are attempting to detect. In this sense, the depressive cognitions of remitted-depressed individuals are latent not in that they are inactive but because their influence is concealed by active suppression.

Research in this area supports the idea that thought suppression masks a cognitive vulnerability to depression, that this vulnerability becomes apparent when mental control is disabled (e.g., when rehearsing a 9 digit number during the task), and that this effect is particularly pronounced among those who engage in chronic thought suppression (Wenzlaff & Bates, 1998; Wenzlaff & Eisenberg, 2001; Wegner & Zanakos, 1994; Wenzlaff, Meir, & Salas, 2002; Wenzlaff, Rude, Taylor, Stultz, & Sweatt, 2001). One such study, for example, revealed that the imposition of a cognitive load caused remitted-depressed individuals to interpret recorded homophones in a more negative fashion (performing more similar to depressed than to control subjects), and that this was not the case without the cognitive load. Similar studies have been done using scrambled sentences which could be

unscrambled to form depression-relevant (i.e., depressotypic) themes. In all of these studies, the increase in negative thinking induced by the cognitive load was significantly correlated with Wegner and Zanakos's (1994) measure of propensity to suppress unwanted thoughts. The rationale behind these studies is that if remitted depressed individuals are actively suppressing depressotypic thinking, it should be possible to detect the suppressed negative bias by imposing a cognitive load. Taken together, results of these studies are consistent with the hypothesis that the active suppression of depressotypic thoughts may serve to mask an underlying depressive schema in individuals at risk for depression.

### SUPPRESSION OF WORRY IN GENERALIZED ANXIETY DISORDER AND INSOMNIA

Worry is conceptualized as thoughts that are motivated by the avoidance of emotionally negative imagery and of concomitant aversive somatic sensations (Borkovec & Inz, 1990). Although worry is initiated in order to avoid imagery of future catastrophe and of current anxiety sensations, it quickly becomes undesirable in itself and is experienced as increasingly uncontrollable (Borkovec & Roemer, 1995). Thus, an important difference between worries and other unwanted intrusive thoughts (e.g., those in OCD) is that they are ego-syntonic and hence the motivation to suppress them is not obvious. However, once the worries themselves become unwelcome, they may initiate a cycle of self-perpetuating counterproductive attempts at controlling them. Nevertheless, a study conducted by Behar, Vescio, and Borkovec (2005) to distinguish between the effects of thought- versus image-suppression about a worrisome target did not reveal a rebound effect for either group.

A cardinal feature of generalized anxiety disorder (GAD) is the persistence of uncontrollable worries. Becker, Rinck, Roth, and Margraf (1998) tested the hypothesis that patients with GAD show a bias in ability to suppress their worries. Consistent with their hypothesis, they observed that GAD patients found it more difficult to suppress thoughts of their worries than thoughts of a neutral target. However, Mathews and Milroy (1994) did not observe a suppression-specific rebound effect for worries in a nonclinical sample of excessive worriers. They found that worriers had more frequent worry thoughts than nonworrying individuals regardless of mental control instruction. Taken together, these findings suggest that thought suppression may play a limited role in exacerbating worries in GAD.

Harvey (2003) further illuminated the role of thought suppression in the maintenance of worry by investigating

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### SUPPRESSION OF WORRY IN GENERALIZED ANXIETY DISORDER AND INSOMNIA

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its effects in clinical insomnia. Worries surface as a persistent cognitive activity in clinical insomnia (Borkovec, 1982). Harvey (2003) found that compared to control participants, insomniacs reported a greater use of suppression to control their presleep worries. Furthermore, insomniacs instructed to suppress their self-identified worry reported worse sleep quality and longer sleep-onset latency than did insomniacs in the no-suppression condition. The intriguing finding is that this was the case in the absence of a rebound of the worrying thought for the suppression group, suggesting that the act of suppression—possibly due to the effort devoted to the endeavor—appears to exacerbate the disorder.

### **SUPPRESSION AND ALCOHOL USE AND ABUSE**

Alcohol abuse is conceptualized as a disorder of overactivation of approach motivation toward the positive effects of alcohol (Palfai & Ostafin, 2003) coupled with underactivation of avoidance motivation away from its negative consequences (Ostafin, Palfai, & Wechsler, 2003). It follows that cognitive avoidance strategies at odds with this pattern of motivation—such as the suppression of positive alcohol-related thought—meet with little success.

The research on thought suppression in alcohol use was motivated by a finding that individuals in the process of quitting smoking experienced an enhancement of smoking-related intrusions under suppression (Salkovskis & Reynolds, 1994). Palfai, Colby, Monti, and Rohsenow (1997) tested the hypothesis that in a sample of heavy social drinkers, suppression of urges to drink would lead to increased accessibility of alcohol-related information, particularly information regarding expectancies about the effects of alcohol. In their study, heavy social drinkers were exposed to their usual alcoholic drink during which one group was instructed to suppress the urge to drink alcohol and the other group received no instructions. Following this, both groups made timed judgments about the applicability of a number of alcohol outcome expectancies. As hypothesized, those in the suppression condition were faster to endorse alcohol outcome expectancies than those in the control condition. This suppression-induced hyperaccessibility of alcohol-related information in heavy social drinkers is consistent with results of a study conducted with a sample of alcohol abusers. In this study, Klein (2007) found that alcoholic subjects who had tried to suppress thoughts of alcohol prior to performing a modified Stroop task showed increased interference for the word "alcohol" as compared to those alcoholic subjects

who had expressed thoughts about alcohol freely prior to the task. These results are consistent with the idea that suppression leads to hyperaccessibility (Wegner & Erber, 1992) of suppressed information and that this bias in information-processing may play a role in maintaining the disorder.

The effects of suppression in alcohol abuse have also been assessed, though less directly, on biological indicators of psychological well-being, such as heart-rate variability (HRV). HRV has been shown to be positively correlated with measures of cognitive flexibility and with the ability to regulate emotion (Johnsen et al., 2003). Consistent with this idea, Ingjaldsson, Laberg, and Thayer (2003) found a negative association between HRV and the propensity to suppress unwanted thoughts in chronic alcohol abuse. These results support earlier findings that suggest that low HRV is associated with impaired cognitive control and rigid thinking (Thayer & Lane, 2002), and that thought suppression is particularly counterproductive for mitigating alcohol-related urges and cravings (Palfai, Colby et al., 1997; Palfai, Monti, Colby, & Rohsenow, 1997).

It is interesting to note that the suppression of alcohol-related urges may have cross-substance effects. For instance, Palfai, Colby et al. (1997) have discovered that those who had previously suppressed their urge to drink alcohol showed an increase in smoking behavior. It remains to be seen whether these cross-substance effects are specific to the relationship between alcohol and smoking or if they can be extended to the suppression of other unwanted urges. Confirmation of the latter would expand considerably the scope of suppression-related negative consequences for addictions.

### **SUPPRESSION AND SELF-INJURIOUS THOUGHTS AND BEHAVIORS**

Self-injurious thoughts and behaviors (SITB) include suicidal ideation, suicide attempts, and nonsuicidal self-injury (NSSI) or direct, deliberate destruction of body tissue in which there is no intent to die (e.g., cutting or burning one's skin). Recent conceptualizations of SITB suggest that it is a disorder of avoidance motivation in that it functions to avoid aversive cognitive and emotional experiences (Baumeister, 1990; Boergers, Spirito, & Donaldson, 1998; Chapman, Gratz, & Brown, 2005; Nock & Prinstein, 2004, 2005). Take the example of a 13-year-old patient who has an argument with her boyfriend. She has a predisposition for high emotional reactivity and is immediately overwhelmed by anger, sadness, fear of her boyfriend forsaking her, and thoughts

of her own worthlessness, among a host of other negative cognitions and emotions. She cannot bear the emotional arousal, tries to not think about it, fails, only thinks about it more, and then finds some, though minimal, relief in focusing on thoughts of cutting herself. Ultimately, it is the behavior of cutting that helps reduce her emotional arousal.

Research has suggested that when people try to suppress thoughts, they tend to undertake an *unfocused distraction* strategy—the iterative use of many different distracters rather than just one focus—and experience a rebound of the suppressed thought (Wegner, Schneider, Knutson, & McMahon, 1991). However, this rebound effect is less likely to occur if suppression is undertaken using a *focused distracter* thought (Wegner et al., 1987). This successful focused distraction from certain thoughts is often an adaptive strategy for reducing the frequency of the thoughts or the distress associated with them (Johnstone & Page, 2004; Salkovskis & Campbell, 1994). However, it may be maladaptive in cases when the distracter itself is harmful, such as in the example above, when SITB becomes the focused distracter from thoughts that create aversive emotions.

A study by Najmi, Wegner, and Nock (2007) tested a model suggesting that the propensity to suppress unwanted thoughts is a cognitive mediator of the relationship between emotional reactivity and SITB. Results of this cross-sectional study revealed that the self-reported propensity to suppress unwanted thoughts partially mediates the relationship between emotional reactivity and the frequency of NSSI and suicidal ideation. Moreover, those with a higher tendency to suppress unwanted thoughts reported engaging in NSSI primarily in order to reduce aversive emotions. Thus, the general tendency to suppress unwanted thoughts was demonstrated in the need to suppress the specific aversive thoughts and emotions that trigger NSSI.

## SUPPRESSION AND PSYCHOSIS

The study of thought suppression in psychosis has not attracted many researchers, probably because they recognize that other factors are likely to cause such disorders, and that the study of suppression is thus unlikely to get to the heart of the problem. However, this approach may obscure how suppression could be involved in the amplification of symptoms. As discussed above, ironic process theory predicts that when mental capacity is compromised by cognitive load, the control falls below a baseline level and produces the opposite of the intended effect. However, this is not unique to thoughts, but in fact is the

same process at work when people are burdened by competing cognitive demands as they try to relax (Wegner, Broome, & Blumberg, 1997), concentrate (Wegner, Erber, & Zanakos, 1993), sleep (Ansfield, Wegner, & Bowser, 1996), avoid being prejudiced (Macrae, Bodenhausen, Milne, & Jetten, 1994), or ignore pain (Cioffi & Holloway, 1993; Masedo & Esteve, 2007). Could suppression of psychotic symptoms also serve to intensify them? The ironic process theory suggests an exploration of the intriguing possibility that suppression may play a role in the persistence of hallucinations in psychotic disorders (Morris & Wegner, 2000).

The hypothesis that hallucinations are maintained by avoidance motivation follows from the idea that auditory hallucinations share certain features with the intrusion of unwanted thoughts (Morrison, Haddock, & Tarrrier, 1995). Much like auditory hallucinations, intrusive thoughts often take the form of repetitive, ego-dystonic, unacceptable images, or impulses, which, if appraised negatively, can generate feelings of “mental pollution” (Rachman, 1994). Morrison and Baker (2000) found that patients who experienced auditory hallucinations had more intrusive thoughts than did the no-hallucinations schizophrenia control group and the nonpsychiatric control group. Furthermore, patients who experienced auditory hallucinations found their intrusive thoughts more distressing, uncontrollable, and unacceptable than did the control groups, and the degree of distress caused by the voices was associated with their negative appraisal of the voices.

According to Morrison et al.’s (1995) heuristic model, auditory hallucinations are experienced when intrusive thoughts are attributed to an external source in order to reduce cognitive dissonance. They propose that this dissonance is caused by the lack of concordance between the intrusive thoughts and preexisting metacognitive beliefs such as those concerning the controllability of these thoughts. This is consistent with Bentall’s (1990a,b) hypothesis that implicates faulty metacognitive beliefs as a critical factor that influences attempted suppression and persistence of auditory hallucinations, an idea that has been suggested earlier regarding maintenance of intrusive thoughts in OCD.

Analogous to the research on intrusive thoughts, Barrett and Etheridge (1992) have found that hallucinations are a normative experience. Thus it is possible that what makes a normal hallucination clinically significant might in part be failed cognitive avoidance strategies, such as suppression. Morrison (1998) suggests that the process underlying disturbing intrusive thoughts in anxiety disorders and disturbing intrusive auditory hallucinations in psychotic disorders may in fact be similar. The

cognitive model of panic (Clark, 1986) suggests that panic attacks result from a predisposition to misinterpret certain bodily sensations, especially common somatic responses to anxiety, in a catastrophic manner, appraising them as being indicative of immediate danger. This predisposition is maintained in part by cognitive and behavioral avoidance that prevents disconfirmation of threat (Salkovskis, 1996). Morrison (1998) suggests that appraisals of hallucinations in psychosis may be analogous to this catastrophic misinterpretation in panic.

Although there are as yet no empirical studies addressing this hypothesis directly, there exists some preliminary evidence consistent with the proposed framework. For example, it has been shown that individuals who experience auditory hallucinations exhibit stronger metacognitive beliefs regarding the uncontrollability of mental events, in comparison with psychiatric and non-psychiatric controls (Baker & Morrison, 1998). To the extent that beliefs about controllability influence attempts at mental control, as has been suggested in the case of intrusive thoughts in OCD, these findings are consistent with the possibility that attempts to avoid or suppress might play a role in the maintenance of hallucinations. Morrison and Wells (2000) assessed various strategies used to control unwanted thoughts—distraction, social control, punishment, worry, and reappraisal—and showed that individuals with schizophrenia used significantly more punishment and worry strategies and significantly less distraction strategies than did control subjects. Romme, Honig, Noorthorn, and Escher (1992) found that use of distraction as a coping strategy was inversely correlated with ability to cope with hallucinations, whereas Nayani and David (1996) found that the use of distraction coping strategies was correlated with reports of worsening the hallucinations. Although these results do not assess thought suppression *per se*, they are consistent with the idea that the use of certain cognitive techniques can exacerbate or maintain auditory hallucinations in a manner similar to that which occurs with unwanted, intrusive thoughts.

According to Bentall (1990a,b), auditory hallucinations may reflect a bias, rather than a deficit, in the monitoring of internal events, and this bias may be influenced in part by beliefs and in part by negative reinforcement in the form of anxiety reduction. For instance, the misattribution of certain kinds of internally generated events, such as negative, ego-dystonic, thoughts about the self, as being externally generated may be reinforced by a temporary reduction in anxiety. Bentall's ideas are consistent with those of Morrison et al. (1995), namely that beliefs inconsistent with intrusive thoughts lead to cognitive

dissonance which is then reduced when the intrusive thoughts are attributed to an external source, as in auditory hallucinations. The individual, instead of remaining indifferent to the appraisal of the hallucination, will then engage in counterproductive avoidance strategies, such as suppression (Morrison, 1998, 2001; Morrison et al., 1995).

The idea that hallucinations are maintained by suppression of self-discrepant, ego-dystonic, thoughts (Morrison & Baker, 2000; Morrison et al., 1995) was examined empirically by García-Montes, Perez-Alvarez, and Fidalgo (2003) using a nonclinical sample. They investigated the effects of the repeated suppression of self-discrepant thoughts on the vividness of auditory illusions. They found that when discrepancy of thoughts was high, suppression indeed increased the quality of the illusions reported by participants; on the other hand, when discrepancy of thoughts was low, their suppression had no effect on the quality of auditory illusions. This study of illusions in a nonclinical sample provides a basis for examining the phenomenon of hallucinations in a clinical sample.

Treatment using the normalizing approach of Kingdon and Turkington (1993), in which they propose the use of psychoeducation regarding the commonness of hallucinations, may help to prevent catastrophic misinterpretation of hallucinations and the subsequent use of misguided mental control to get rid of them. A model for this exists in the treatment of OCD in which the original thought suppression experiment (Wegner et al., 1987) has been used for several years now as a behavioral experiment in therapy. Patients have been invited to suppress thoughts of a neutral target, e.g., giraffe, and the subsequent occurrence of the giraffe images is then used as the basis for educational discussion about the need to control thoughts (Baer, 2001; Salkovskis & Campbell, 1994).

## SUPPRESSION AND DREAMS

As a final note on mental disorder and suppression, it is worth noting that one of the more insidious symptoms of disorder—recurrent distressing nightmares (Hartmann, Russ, van der Kolk, Falke, & Oldfield, 1981)—might also be open to a suppression analysis. Wegner, Wenzlaff, and Kozak (2004) asked participants in a nonclinical sample to spend some time before bed attempting to suppress the thought of a person; those in comparison conditions either thought about the person for this time or thought about anything (after having their attention directed to the person). Dream diaries collected the next morning revealed that thinking about the person increased the

likelihood of dreaming about the person, but that suppression of thoughts about the person increased such dreaming even more. This was true regardless of the emotional valence of the person (attractive or not), suggesting that the tendency to suppress thoughts in waking may make them return in dreams. If people suffering from severely distressing thoughts in the daytime put them aside through suppression, it makes sense that they might end up paying for this strategy with horrific nightmares. The role of such processes in psychopathology has yet to be discerned, but these results suggest that thought suppression may play a part in magnifying mental distress.

## CONCLUSION

Taken together, studies on thought suppression in psychopathology present a more nuanced picture now than was emerging in the early years of its investigation. Some evidence is consistent with the idea that the counterproductive effects of suppression are causally implicated in the disorder, but for the most part a more parsimonious conclusion is that thought suppression acts as a complication of the disorder. The detrimental effects of suppression are often different across a wide range of emotional disorders. Suppression is rarely successful in the long run, but in some cases it can be successful in the short-term and prevent exposure to and habituation of undesirable emotional states; in other cases, suppression is often counterproductive, exacerbating aversive thoughts, and concomitant aversive emotions; finally, faulty beliefs about the possibility of successful suppression and subsequent attributions of the inevitable failure of suppression can exacerbate the negative emotional state and trigger further futile suppression attempts. In one way or another, suppression, like most experiential avoidance strategies, is detrimental to psychological well-being. Future research should focus on evaluating the relative merits of alternatives.

Recently reported successes of mindful-acceptance based techniques in the treatment of emotional disorders (Bach & Hayes, 2002; Foa & Wilson, 2001; Hayes, Strosahl, & Wilson, 1999; Roemer & Orsillo, 2002; Segal, Williams, & Teasdale, 2002) suggest a possible mechanism that encourages exposure to unwanted thoughts and feelings, at the very least by explicitly discouraging suppression. Wenzlaff (2005) suggested that one way of understanding mindfulness-based therapies is that they work against avoidance motivation, specifically the individual's tendency to try to suppress unwanted thoughts. "The instruction to be mindful instead promotes an abandonment of mental control intentions.... This kind of therapy may have salutary effects because it replaces the

use of a self-defeating mental control technique with a simple relaxation of the control motive" (p. 74).

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