Response Modulation Deficits: Implications for the Diagnosis and Treatment of Psychopathy

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Laboratory evidence indicates that a specific information-processing deficiency underlies the behavioral manifestations of psychopathy. Specifically, the automatic direction of attention and controlled processing to stimuli or information that are peripheral to ongoing goal-directed behavior or a current response set occurs less readily in psychopathic individuals. We describe how this deficiency constitutes an impairment of the response modulation process, which, in turn, impedes adaptive self-regulatory functioning. This hypothesis is contrasted with the view that antisocial behavior is the essential or core feature of psychopathy, as well as with the position that psychopathy reflects a specific deficit in the processing of affective stimuli. Finally, implications of this hypothesis for the effectiveness of cognitive and behavioral interventions are discussed.

In recent years, the psychopathy construct has become increasingly prominent in the field of criminal justice. This circumstance is due largely to the demonstrated validity of a widely recognized measure of psychopathy—the Psychopathy Checklist- Revised (PCL-R; Hare, 1991). Incarcerated offenders who attain high PCL-R scores commit more than twice as many crimes and are two to five times more likely to reoffend compared to other prisoners (Hare, 1996; Kosson, Smith, & Newman, 1990; Serin, 1996). However, in contrast to the prominent role of the psychopathy construct in the criminal justice system, psychopathy is not currently recognized as a unique psychiatric diagnosis. Rather, individuals who meet the PCL-R criteria for psychopathy are likely to be diagnosed as suffering from Antisocial Personality Disorder (APD).
According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition of the American Psychiatric Association (1994), characteristics or behaviors associated with APD include the repeated commission of illegal acts, deceitfulness, impulsivity, irritability and aggressiveness, disregard for the safety of self or others, irresponsibility, and lack of remorse. Nonetheless, as will be emphasized below, (a) although a psychopathic individual (P) may manifest these traits, the APD category includes many individuals who are not Ps (Hare, 1996), and (b) Ps should be considered distinct from other APD individuals for the purposes of diagnosis and treatment.

Fundamental to our theoretical perspective on psychopathy is the concept of response modulation, which we have defined as entailing brief and relatively automatic shifts of attention from the organization and implementation of goal-directed behavior to the evaluation of the behavior or response set. This shifting of attention is considered to be automatic in the sense that it is a “fast, parallel, fairly effortless process that is not limited by short-term memory (STM) capacity, is not under direct subject control, and is responsible for the performance of well-developed skilled behaviors” (Schneider, Dunais, & Shiffrin, 1984, p. 1). This type of process is “activated automatically without the necessity of active control or attention by the subject” (Schneider & Shiffrin, 1977, p. 2).

Although response modulation involves a process that is primarily automatic, it is responsible for the initiation of higher-order cognitive processing, which ultimately provides the context for exercising adaptive self-regulation (see Patterson & Nenman, 1993). Kanfer and Gaelick (1986) identified three phases or processes associated with self-regulation: (a) self-monitoring, or carefully observing one’s own behavior, (b) self-evaluation, or comparing one’s observed performance with one’s performance standards, and (c) self-reinforcement, or one’s positive or negative reactions to the self-evaluation. According to Kanfer and Gaelick (1986), self-regulatory processes are dependent upon controlled information processing, which differs qualitatively from automatic information processing, and is “a slow, generally serial, effortful, capacity-limited, subject-regulated processing mode that must be used to deal with novel or inconsistent information” (Schneider et al., 1984, p. 2). We consider response modulation as having the primary function of initiating self-regulation and the shift to controlled information processing.

If the automatic and controlled components of the response modulation and self-regulation processes are functioning properly, behavior that is judged to be appropriate is continued; if a minor modification is indicated then the necessary adjustments in response strategy are made; and if the behavior appears to be inappropriate or maladaptive in light of the available information, it is likely to be inhibited and replaced with another response strategy or set.

In the remainder of this manuscript, we will review research that is relevant to the diagnosis and treatment of psychopathy utilizing the previously described response modulation framework. We will conclude that the automatic direction of attention to, and hence the controlled processing of, stimuli or information that is
Response Modulation Deficits

Peripheral to ongoing goal-directed behavior or a current response set occurs less readily in Ps. In consequence, we suggest that psychopathy reflects a decreased ability to suspend and evaluate the current goal-directed behavior or response set, rather than a general intellectual, motivational, or affective deficit.

EXPERIMENTAL EVIDENCE

The experiments reported below utilized as participants prison inmates who were diagnosed using the Psychopathy Checklist (PCL, Hare, 1980) or Psychopathy Checklist-Revised (PCL-R, Hare, 1991), which are highly reliable and valid measures of psychopathy (Hare, 1991; Hare et al., 1990; Kosson et al., 1990; Serin, 1992). In addition, several of the studies from our laboratory further divided P and nonpsychopathic (NP) groups into high- and low-anxious subgroups using the Welsh Anxiety Scale (Welsh, 1956). This procedure permits the examination of, and control for, the potentially confounding effects of anxiety on performance (see Newman & Brinkley, 1998), and, in fact, significant psychopathy by anxiety interactions often are observed (see Newman & Wallace, 1993).

An initial set of experiments examined the extent to which Ps experience difficulty altering a response set or the primary focus of ongoing goal-directed behavior. One experiment (Newman, Patterson, & Kosson, 1987) utilized a computerized card game, in which participants earned 5 cents each time that a face card (i.e., jack, queen, king, ace) appeared and lost 5 cents each time that a number card (i.e., 2, 0) appeared. The probability of obtaining a face card was high initially, but decreased as the game progressed. The dependent variable of interest was the number of cards that a participant played before terminating the game.

To optimize winnings, participants had to suspend their response set—that is, stop playing additional cards with the hope of winning money—as the probability of obtaining a face card and winning decreased, and that of obtaining a number card and losing increased. In other words, they had to play cards initially, but then recognize the changing contingencies and quit the game when the probability of losing grew greater than the probability of winning. Ps played significantly more cards and lost significantly more money than did NP controls, indicating that they were less able to alter their response set based on the changing contingencies of the computer game. This deficit involving response perseveration also has been observed in children with psychopathic tendencies (Frick, 1998).

In a second study that involved altering a response set (Newman & Kosson, 1986), two-digit numbers were presented on a computer monitor. One of eight different numbers appeared on each trial, and participants were required to learn by trial and error to press a response button when some of the numbers (target numbers) appeared and to refrain from pressing when one of the other numbers (nontargets) appeared.

In the reward-punishment (R+P) condition, participants won 10 cents for making a button-press response when a target number appeared and lost 10 cents for
responding to a nontarget number. In the punishment-only (PUN) control condition, participants lost 10 cents for responding to nontarget numbers and also lost 10 cents for failing to respond to target numbers.

As predicted, in Condition R+P, in which a set to press the button to win money was established, psychopathic offenders made more commission errors (incorrect responses) when a nontarget was present, that is, they failed to inhibit the response set for reward (i.e., pressing the response button) when a stimulus associated with punishment was present. However, in Condition PUN, in which no set to respond was established, P and NP participants did not differ significantly in their task performance.

A number of other control conditions also have been employed. In one, the task design induced participants to process both reward and punishment contingencies from the beginning of the task, which would be expected to prevent the reward contingency from becoming the dominant focus and thus eliminate the need to alter a response set while performing the task (Newman, Patterson, Howland, & Nichols, 1990). Other studies have promoted the processing of peripheral contingencies by using relatively long intertrial intervals which provided ample time to process nondominant contingencies (Arnett, Howland, Smith, & Newman, 1993; Newman et al., 1987). As in Condition PUN, the task performance of P and NP participants did not differ under these conditions (for a review, see Newman & Wallace, 1993).

This first series of experiments suggested to us that Ps are motivated and able to utilize information that is made salient to them. However, Ps are more likely to experience difficulties when it is necessary to process contingencies or task requirements that are peripheral to the current response set. A second series of experiments was designed to examine to what extent Ps actually fail to pause and process information that is peripheral to their current response set. To this end, response times after correct (i.e., rewarded) and incorrect (i.e., punished) responses were recorded to determine the extent to which participants paused to process feedback following mistakes. By subtracting response times following rewarded responses from response times following punishment, an estimate was obtained of how long participants suspended their goal-directed behavior to process unexpected, negative feedback.

In one experiment (Newman et al., 1990), participants performed a variation of the go/no-go discrimination task involving two-digit numbers described above (i.e., Newman & Kosson, 1986). However, following each response and presentation of response feedback, participants were required to press a button a second time to initiate the subsequent trial. In this way, participants could spend as much (up to 5 seconds) as little time as they liked processing the response feedback. As predicted, low-anxious Ps paused less following punished responses and made more commission errors than did low-anxious controls. These differences were not related to speed-accuracy trade-offs or overall response speed. Moreover, across groups, the longer that participants paused after punishment relative to their pauses following reward, the fewer commission errors they made. This supports the
contention that the length of pausing following a punished response constitutes an index of the extent to which feedback that is peripheral to the current response set is processed.

In another study (Newman & Howland, 1987), a computerized version of the Wisconsin Card Sorting Task was used. Based on the features (i.e., color, shape, and number of symbols) of each four-symbol stimulus display, participants sorted each display into one of four "piles" by pressing one of four buttons. After 10 consecutive correct responses, the sorting rule was changed without warning (e.g., from sorting based on color to sorting based on shape). Participants therefore had to revise the established sorting strategy or response set based on feedback that was inconsistent with that set. Unfortunately, chance differences in intelligence between groups were evident in the analyses, and this study was not published. Nevertheless, low-anxious controls paused after rule changes, and presumably processed the feedback inconsistently with the response set, whereas low-anxious Ps did not. Again, the inference is that Ps tend to pause less and process less fully information that is peripheral to the current response set (see also Arnett, Smith, & Newman, 1997).

Furthermore, because the extent of processing of the peripheral information was related to the length of pausing, the utilization of limited-capacity attentional and controlled processes is indicated as the component that is not engaged as fully in Ps as it is in NPs. This is because an automatic process would not be expected to be dependent on the suspending of goal-directed activity and information processing, but rather could proceed in parallel with other processing activities.

A current focus for our research group has been to determine (a) the extent to which Ps' failure to process fully or utilize information that is peripheral to the current response set is associated with automatic, as well as with voluntary or controlled, processes, and (b) what might be the relationships among those processes. Several experiments by other investigators also are relevant to this area of research.

In one study by Jutai and Hare (1983), event-related brain potentials (ERPs) that were evoked by brief 1000 Hz tones were collected from Ps and NPs. The amplitude of the N100 ERP component was used as an index of the extent to which attention was directed to the tones. N100 peaks approximately 100 ms after the onset of an auditory stimulus, and due to this brief latency, is considered to reflect primarily the involuntary or automatic direction of attention (e.g., Näätänen, 1988).

Tones were presented under two conditions. First, participants simply listened to the tones while not engaged in any other activity. Second, participants played two sets of video games, each of which were divided into six 135 second trials. They were told that the tones were not relevant to their task, which was to score as many points in the video games as possible.

Group differences in N100 amplitude did not approach statistical significance when the tones were presented in the absence of a competing activity (i.e., playing a video game). Conversely, during the first video game trial, the amplitude of Ps' N100 was significantly less than that of NPs. That is, relative to NPs, Ps were
deficient in their involuntary or automatic direction of attention to the tones. Furthermore, this study demonstrates that Ps do not differ markedly from NPs with respect to the automatic direction of attention, when attention is not allocated to the attainment of a behavioral goal. Rather, the disparity is evident primarily when the eliciting stimulus is peripheral to ongoing goal-directed behavior.

Cleckley (1976) and others have suggested that the "inability to experience or appreciate the emotional significance of everyday life events" (Williamson, Harpur, & Hare, 1991, p. 260) is the core deficit underlying psychopathy. Williamson et al. (1991) used a lexical decision task to investigate this phenomenon. Research with such tasks, which entail determining whether a string of letters is a word or a nonword, has demonstrated that words having affective significance are identified more quickly than are words lacking a strong emotional valence. It was predicted that this effect would be less apparent in Ps than in controls, and, in fact, Ps did manifest smaller behavioral and electrocortical differences in their responses to the affective and neutral words.

This study demonstrates that the emotional significance or meaning of the stimulus items—which was peripheral to participants' manifest task of identifying the letter strings as words or nonwords—had less influence on the reactions of Ps. This, in turn, suggests to us that this aspect of the stimulus words received less processing by P than by NP participants. To use the terminology adopted in the present manuscript, it seems plausible that processing the peripheral (i.e., affective) aspects of the stimuli depended on a relatively automatic process, and that Ps differed from controls in the efficacy of that automatic process.

A more recent experiment (Newman, Schmitt, & Voss, 1997) examined whether the meaning of affectively neutral peripheral information would interfere with the task-relevant information processing to a lesser degree in Ps than in NPs. The computerized task used in this study was developed by Gernsbacher and Faust (1991). Participants were instructed to determine whether or not two pictures or two words were conceptually related, and won money based on the speed and accuracy of their responses. Each trial began with the presentation of a "P" or a "W." On "P" trials, participants were to focus on the picture component of the subsequent stimuli, whereas on "W" trials, the word component was relevant. Next, a picture and a word were presented simultaneously. On picture trials, the word in the display was irrelevant to task performance, and hence should be ignored. Conversely, on word trials, the picture in the stimulus display was irrelevant. Following this compound stimulus display, a test stimulus was presented: a picture on picture trials and a word on word trials. Participants then responded to indicate whether the relevant stimulus in the first, compound display was conceptually related or unrelated to the second or test stimulus.

Central to the purpose of the experiment, the to-be-ignored irrelevant stimulus in the first display also was either conceptually related or unrelated to the test stimulus in the subsequent display. Although the relation of the irrelevant or peripheral stimulus to the test stimulus had no bearing on participants' manifest
task, this relationship has been demonstrated to have a significant effect on participants’ task performance. Specifically, when the relevant stimulus is unrelated to the test stimulus, but the irrelevant and test stimuli are conceptually related (interference trials), participants are slower to determine that the relevant and test stimuli are unrelated (Gernsbacher & Faust, 1991). Because the to-be-ignored stimuli are irrelevant to performance of the manifest task, and participants are explicitly instructed to ignore them, it is likely that the interference caused by the irrelevant cues is relatively involuntary and automatic.

As was the case with “nonnal samples” (e.g., Gernsbacher & Faust, 1991), low-anxious controls responded more slowly on interference trials than when the to-be-ignored stimulus was unrelated to the test display. Conversely, low-anxious Ps showed no interference: They responded just as quickly when the irrelevant stimuli were related to the test stimuli as they did when irrelevant and test stimuli were unrelated.

The lack of responsiveness to the peripheral or irrelevant stimuli demonstrated by Ps suggests that their attentional and controlled processing resources were not allocated to the processing of that peripheral information. If those limited-capacity information-processing resources had, in fact, been allocated to the processing of the irrelevant stimuli, then some curtailment of the comparison of the relevant and test stimuli would have been apparent (as is the case for NPs). This suggestion, in turn, is consistent with the hypothesis that the automatic direction of attentional and controlled processing resources occurs less readily in Ps.

In addition, because the stimuli were affectively neutral, the result indicates that the deficit of Ps is not dependent on the emotional content of the stimuli involved. In other words, Ps are less influenced by the meaning of affectively neutral stimuli, as well as by the meaning of affectively significant stimuli, provided that this information is peripheral to their ongoing goal-directed behavior or response set.

Combined, the above findings suggest that while Ps are engaged in goal-directed behavior, they are less likely to process adequately, and revise their response strategies in accord with, peripheral information that would be of benefit to them. Furthermore, this deficiency does not involve an impaired ability to process information when doing so is the focus of the P’s attention or the current response set: The performance of Ps is comparable to that of NPs when the task does not require the utilization of automatic processes to direct limited-capacity attentional and controlled processing resources to peripheral stimuli or information. Rather, the deficiency appears to involve the processing of peripheral information when this activity is dependent upon relatively automatic shifts of attention.

This sort of process may bear some similarity to the automatic attention response, which was described by Schneider and Shiffrin (1977; Shiffrin & Schneider, 1977). According to these researchers, the automatic attention response “modifies ongoing controlled processing by attracting attention to a specified locus. . . . These attention responses then direct attention (i.e., will direct controlled processing) automatically to the target, regardless of concurrent inputs or memory
load" (Schneider & Shiffrin, 1977, p. 2). Automatic attention responses, then, may “interrupt ongoing control processing and forcefully reallocate attention and resources” (Schneider et al., 1984, p. 22).

To summarize, we suggest that Ps suffer from a cognitive deficiency involving the automatic allocation of attentional and controlled processing resources, which diminishes the awareness and processing of potentially useful peripheral information, and thus interferes with the ability to regulate dominant response inclinations and goal-directed activity. It is important to note that we do not postulate a complete absence of the processing of peripheral information. Rather, under certain conditions this sort of processing tends to be less effective for Ps than is the case for NPs. This point is well illustrated by Jutai and Hare's (1983) psychophysiological data: The N100 attentional response to the tone stimuli was not absent in Ps, but rather was of significantly lesser amplitude than was the case for NPs.

**CLINICAL DESCRIPTIONS OF PSYCHOPATHY**

In addition to being consistent with research findings involving Ps diagnosed primarily on the basis of PCL or PCL-R scores, the current formulation is in accord with clinical descriptions upon which the conceptualization of psychopathy is based. For example, Shapiro (1965) characterized the P’s deficit as involving "an insufficiency of active integrative processes..."which causes the P to remain "oblivious to the drawbacks or complications that would give another person pause and might otherwise give him pause as well" (p. 149). Regarding the nature of this process, Shapiro wrote that "in the normal person, the whim or the half-formed inclination to do something is the beginning of a complex process, although, if all is well, it is a smooth and automatic (italics added) one" (p. 140). For the P, however, this process is substantially compromised.

Another influential clinical description of psychopathy is contained in Cleckley’s (1976) book, *The Mask of Sanity*. According to Cleckley, Ps are not particularly prone to antisocial behavior, or, for that matter, to other strong urges. Rather, given even a relatively modest impulse to respond or act (i.e., a response set or behavioral goal), Ps are especially unlikely to exercise restraint. Hence, although antisocial or criminal behavior may be the most salient feature of psychopathy, the lack of ability to modulate a response set may be the most integral.

In addition, Cleckley (1976) noted that "in complex matters of judgment involving ethical, emotional, and other evaluational factors...[the P] shows no evidence of a defect. So long as the test is verbal or otherwise abstract, so long as he is not a direct participant, he shows that he knows his way about." However, "when the test of action comes to him we soon find ample evidence of his deficiency" (p. 346). This statement implies that Ps have the capacity for sound judgment and genuine affect, but that the requisite information is less accessible when the P is engaged in goal-directed behavior. Indeed, the clinical literature provides numerous examples of this problem: "I always know damn well I shouldn't
do these things, that they're the same as what brought me to grief before. I haven't forgotten anything. It's just that when the time comes I don't think of anything else. I don't think of anything but what I want now." (Grant, 1977, p. 60).

These clinical characterizations of psychopathy clearly are consistent with our proposal regarding the P's impairment. Unlike most people, who have a substantial capacity for anticipating automatically the consequences of their actions, Ps tend to be aware of those sorts of considerations only when they are (a) central to the current response set or ongoing activity, or (b) made salient prior to the initiation of goal-directed behavior or a response set. In other words, when information is central to the intentional or controlled focus of attention, it may be utilized readily by Ps. On the other hand, when the accessibility depends on the automatic allocation of limited-capacity cognitive resources (i.e., when those resources are engaged elsewhere), the ability to utilize the information is substantially diminished.

This emphasis on the interaction between automatic and controlled processes is compatible with Shapiro's (1965) description of psychopathy, as well as with Cleckley's (1976) observation that the impaired judgment of Ps is specific to circumstances in which they are engaged in goal-directed behavior. Ps display little evidence of impairment when utilizing controlled cognitive abilities to provide abstract answers to verbal questions. However, when they must rely on automatic processes to regulate their behavior while attentional and controlled processing resources are allocated to the attainment of immediate goals, the impairment becomes much more pronounced. This does not mean that Ps are incapable of regulating behavior, only that self-regulation will be more effortful or dependent upon controlled processing capacity for individuals suffering from psychopathy. In consequence, their abilities to utilize peripheral information will be especially vulnerable to disruption when available attentional and controlled processing resources are reduced, such as when they are engaged in goal-direct behavior, when they are emotionally "caught up" in a situation, or when processing capacity is reduced due to the use of drugs or alcohol.

**IMPLICATIONS FOR THE DIAGNOSIS AND TREATMENT OF PSYCHOPATHY**

Cognitive therapy theorists (e.g., Beck, Freeman, & Associates, 1990; Young, 1994) propose that many psychiatric disorders, including personality disorders such as APD, reflect the operation of dysfunctional or maladaptive schemes. Schemas are internal cognitive structures that (a) are based on past experience, (b) guide or bias information processing, and (c) may be conceived as beliefs or belief systems about the self and one's physical and social environment. In other words, schemas "serve as templates for the processing of later experience" (Young, 1994, p. 9). The results or products of schema-based information processing include interpretations of one's own or others' actions, specific thoughts and expectations, and judgments of various sorts.
A dysfunctional schema gives rise to judgments, interpretations, and inferences that are consistently biased in an erroneous manner. For example, a person who believes that others tend to be hostile is at risk of (a) interpreting an ambiguous, or even innocuous, interaction as reflecting an aggressive intent (e.g., Dodge & Crick, 1990; Dodge & Newman, 1981), and (b) acting in accord with this misperception. A number of maladaptive schemas have been suggested as having causal influence in the production of APD symptomatology, including "I need to be the aggressor or I will be the victim" (Beck et al., 1990, p. 48), "people are there to be taken" (Beck et al., 1990, p. 26), "others are exploitative, and therefore I'm entitled to exploit them back" (Beck et al., 1990, p. 48-49), "if I don't push others around (or manipulate, exploit, or attack them), I will never get what I deserve" (Beck et al., 1990, p. 49), and "one should be able to do or have whatever one wants, regardless of what others consider reasonable or the cost to others" (Young, 1994, p. 59).

On the other hand, deficiencies that characterize psychopathy, such as a diminished ability to anticipate potential adverse consequences of one's actions or to profit from past experiences, do not seem particularly consistent with the influence of specific schema contents. In this manuscript, we suggest that psychopathy is not characterized by specific types of maladaptive schemas or personality styles. Rather, we have hypothesized a specific information-processing deficiency as being the fundamental causal influence: The automatic direction of attention, and hence controlled processing, to internal or external stimuli or information occurs less readily in Ps when such cues are peripheral to ongoing goal-directed behavior or a current response set.

Although psychopathy historically has been associated with antisocial personality traits, in our view there is no necessary association between the hypothesized information-processing deficiency and any specific personality types. In this way, psychopathy is similar to Attention/Deficit/Hyperactivity Disorder (ADHD). Although it is the case that many persons hearing the ADHD diagnosis also exhibit significant conduct problems (e.g., have concurrent diagnoses of Oppositional Defiant Disorder or Conduct Disorder [American Psychiatric Association, 1994]), those sorts of problems are by no means necessary features of ADHD (American Psychiatric Association, 1994).

This theoretical perspective implies that personality and psychopathy are conceptually independent: Any type of personality structure can overlie the psychopathic person's information-processing deficiency. Hence, just as all APD individuals are not Ps, so all Ps do not meet the diagnostic criteria for APD (Hare, Hart, & Harpur, 1991). Nevertheless, an individual's personality structure certainly will color the maladaptive manifestations of the information-processing deficiency (e.g., aggressive behavior, sexual improprieties, substance abuse, imprudent financial decisions, abrasive or otherwise inappropriate interpersonal behavior). Moreover, in a manner analogous to that in which ADHD may constitute a predisposition to conduct problems, it is likely that a deficiency in the ability to evaluate the appropriateness of responses or response sets may lead to the sorts of life experiences (e.g., frequent interpersonal conflicts) which promote the development of
antisocial schemas (e.g., “others are hostile, therefore I am justified in taking advantage of them”).

For example, both clinical descriptions and anecdotal evidence indicate that P’s are less likely than NPs to follow rules or norms of social behavior, even when there is no benefit for noncompliance (see also, Blair, in press). This may be in part a consequence of a decreased accessibility of adaptive schemas. Much of ones’ information regarding social norms is based on prior experience and stored in schema-like cognitive structures (e.g., Nisbett & Ross, 1980). Examples of such schema-based expectations concern the sequence of events that occur in familiar situations such as visiting a restaurant (e.g., being seated, ordering from a menu, dining, paying the bill, and leaving) or the schema-based understanding of what is expected when meeting with one’s parole officer (expressing remorse, displaying an even temper, presenting a plan for prosocial adaptation, and conveying a commitment to succeed). Whereas most individuals are able to benefit from this sort of schema-based information prior to initiating, as well as during, social interactions, the P’s’ ability to use such information will be limited once they have initiated a response set. Thus, rather than indicating deliberate noncompliance with rules for social interaction, the chronic violation of social norms displayed by P’s may stem from their inability to access rule-related schemas once behavior has been initiated (see also, Gough, 1848).

From this line of reasoning we propose that psychopathy does not reflect primarily the effects of maladaptive schema content and schema-based information processing, as is the case for APD. To the contrary, the current analysis suggests that many of the manifestations of psychopathy may stem from a failure of schema-based processes. This consideration highlights an important distinction in conceptualizing the antisocial behavior of nonpsychopathic APD individuals and P’s: The former intentionally or purposefully violate societal norms, whereas the latter often violate societal norms due to being momentarily oblivious to their existence.

For example, if a P and a nonpsychopathic APD person each were to find a purse on a park bench, they might both react antisocially by taking the purse and removing the valuables, rather than using identification to find the owner. Nevertheless, this same act of behavior could occur for quite different reasons for the nonpsychopathic APD person and the P: For the former, the antisocial action presumably would be motivated by beliefs such as “people who can’t take care of themselves deserve to be exploited,” whereas the latter simply might not be cognizant of the distress that this course of action would cause to the purse’s owner.

To summarize, even if the symptomologies appear similar, if the underlying causal processes markedly differ, it does not seem to serve the purposes of diagnosis to group etiologically dissimilar persons within the same diagnostic category. In consequence, because the psychopathology of P’s in all likelihood results from cognitive processes that differ qualitatively from those that characterize other APD individuals, it is not sufficient to categorize the problem as APD. Rather, psychopathy merits a separate diagnosis.
Moreover, one purpose of diagnosis is to facilitate the choice of treatment regimen. That is, it is useful to assign individuals who differ etiologically to separate diagnostic categories (even if they appear behaviorally similar) because the effectiveness of various treatment approaches also is likely to differ. In particular, we suggest that differences in the etiological processes associated with psychopathy and APD (i.e., an information-processing abnormality vs. specific maladaptive schema contents) will lead to differences in treatment outcome for standard cognitive therapy interventions.

Specifically, based on the current hypothesis, we expect cognitive therapy to be less effective with Ps than with nonpsychopathic APDs. This is because cognitive therapy presupposes that the products of [schema-based information processing] are largely in the realm of awareness (Beck et al., 1990, p. 5; see also Ingram & Hollon, 1986). Furthermore, this awareness of schema products (e.g., specific judgments, interpretations, and inferences) often is due to the allocation of limited-capacity attentional and controlled information-processing resources to the processing of those cognitions. This allocation or direction of attention can occur in a controlled manner if, for example, the schema is intentionally accessed due to its relevance to the current behavioral goal. Nonetheless, as discussed above, the direction of attention and controlled processing to both external and internal stimuli (such as schema products) often proceeds in an automatic manner (see also Wallace & Newman, 1997, 1998). Thus, the awareness and processing of schema products often depends on the automatic allocation of limited-capacity cognitive resources.

However, we have postulated that Ps suffer from a deficiency in the automatic direction of attentional and controlled processing resources to both external and internal stimuli. Hence, internal stimuli such as schema products would be expected to receive substantially less processing from automatically allocated limited-capacity resources, particularly when those cognitions are peripheral to an ongoing response or response set. Consequently, schema-based information processing is expected to be less influential than would be the case for NPs, especially after a response or response set has been initiated. Therefore, standard cognitive therapy focused on altering maladaptive schema contents may be less effective for P than for nonpsychopathic APD persons or for NPs in general.

Importantly, we are not claiming that schemas and schema products are without influence in Ps. First, the ability of Ps to access schemas in a controlled or intentional, rather than in an automatic, manner is comparable to that of NPs. Second, the accessing of schemas using automatic cognitive resource allocation that occurs prior to the initiation of goal-directed behavior or of a response set will not be compromised to the extent that it is subsequent to response or response set initiation.

This latter point implies that schema-based processing that occurs prior to the initiation of a response may influence the types of responses or response sets that subsequently are initiated. For example, Ps who have developed antisocial schemas as well as having the hypothesized information-processing deficiency will be more
prone to initiate antisocial responses than will a P whose schema contents are relatively prosocial.

More generally, we propose that maladaptive (as well as compensatory or otherwise adaptive) schemas will be more influential for shaping the behavior of Ps prior to initiating response sets, whereas their information-processing deficiency will be the primary psychopathological influence, once a response set has been initiated. This formulation has two implications. First, standard cognitive interventions aimed at modifying antisocial, or otherwise maladaptive, schemas are likely to be most effective in addressing the premeditated antisocial behavior of Ps. However, because everyone experiences at least fleeting inappropriate or antisocial thoughts and impulses at times, changing the antisocial schemas of Ps will not, in our view, significantly curtail their chronic antisocial behavior. Second, in order to control antisocial and other maladaptive response sets, Ps are likely to require compensatory strategies for circumventing their information-processing limitations. This is because (a) people generally are dependent upon response modulation (i.e., automatic shifts of attention) to initiate self-regulation and modify ongoing, maladaptive responses or response sets, and (b) it is exactly this automatic process that is deficient in Ps.

As the research documenting information-processing deficiencies in Ps is relatively new, efforts to develop relevant compensatory strategies have scarcely begun (see also, Serin & Kurijshak, 1994). Despite the near absence of relevant research, we are inclined to believe that behavioral interventions will prove most efficacious for addressing Ps' information-processing deficiency and the maladaptive expression of activated, antisocial response sets. Such interventions might include rehearsing the act of pausing (i.e., establishing and strengthening a response set to pause and reflect) to promote the processing of peripheral information prior to initiating a goal-directed response. Recall that the longer that persons pause before acting, the greater is the likelihood that information that is peripheral to the current response set will be processed and utilized (e.g., Newman et al., 1990). Moreover, experimental manipulations that promote pausing to process peripheral information have been shown to eliminate all evidence of the P's deficiency (Arnett et al., 1993, Newman et al., 1987).

In addition to teaching Ps to pause, it might be especially useful to teach the avoidance of situations that require protracted self-control, which involves the continuous and prolonged resistance of the temptation to engage in a desirable, but maladaptive, behavioral response (Kanfer & Gaeckle, 1986). The protracted self-control situation is substantially more difficult to negotiate than is a situation that requires only decisional self-control (Kanfer & Gaeckle, 1986). This is because, whereas the former requires prolonged resistance to temptation (e.g., choosing to abstain from alcohol while sitting in a bar), the latter entails only a single decision that terminates the exposure to temptation (e.g., choosing not to visit the bar in the first place).

The conscious decision to engage in decisional, rather than protracted, self-control most commonly occurs after pausing and reflecting on immediate response
options. However, it also can be associated with longer-term lifestyle choices (e.g.,
making a habit of coming directly home after work, rather than stopping off at a bar).
In either case, a primary benefit of exercising decisional self-control is obviating the
necessity of engaging in the more effortful protracted self-control.

**SUMMARY**

In this manuscript we have argued that, unlike other persons bearing the APD
diagnosis whose psychopathology is causally linked to specific types of maladaptive
schemes, Ps are not characterized primarily by specific dysfunctional schema
contents, but rather by a more general information-processing deficiency involving
the automatic direction of attention to stimuli or information that is peripheral to
ongoing goal-directed behavior or a current response set. This deficiency constitutes an impairment in the response modulation process, which (a) entails brief and
relatively automatic shifts of attention from the implementation of goal-directed
behavior to the evaluation of the behavior or response set, and (b) is crucial to
initiating cognitive processes associated with self-regulation.

Furthermore, because this deficiency differs qualitatively from the presumed
schema-based etiology for other APD individuals, and, in fact, decreases the
influence of schema-based information processing, the present formulation implies
that Ps and NPs with APD merit separate diagnoses. Finally, although cognitive
interventions aimed at altering maladaptive schemas may have considerable utility
for Ps prior to the initiation of a response or response set, behavioral interventions,
such as those described above, may allow Ps to compensate more directly for their
response modulation deficiency, and, in turn, make them more likely to benefit from
adaptive self-regulatory processes.

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