INTERACTIVE EFFECTS OF “TYPE A” BEHAVIOR AND PERCEIVED CONTROL ON WORKER PERFORMANCE, JOB SATISFACTION, AND SOMATIC COMPLAINTS

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This research examined the moderating role of perceived control on the relations between Type A behavior and worker performance, job satisfaction, and somatic complaints. Results suggest that people with high levels of Type A behavior who also have high perceived control perform better and have greater job satisfaction than those low in perceived control. However, the former also reported more somatic complaints than the latter. Implications of our findings and directions for future research are discussed.

Perceived control—the belief that an individual has at his or her disposal a response that can influence the aversiveness of an event (Thompson, 1981)—is thought to affect people’s beliefs about the causes of important outcomes in their lives, the amount of influence they have over events, and the resources they can access to reach their goals (Baltes & Baltes, 1986; Lefcourt, 1976). According to Skinner, Chapman, and Baltes, “Perceived control has been examined not only because it is interesting in itself, but also because it predicts important aspects of motivational, cognitive, and emotional functioning” (1988: 117; cf. Abramson, Seligman, & Teasdale, 1978; Bandura, 1977, 1982; Peterson & Seligman, 1984; Weiner, 1979, 1985). Perceived control is thought to be correlated with, though separable from, both the objective amount of control a person has in a situation and individual differences in locus of control.1 Recently, Spector (1986) conducted a meta-

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1 Locus of control is the generalized expectancy that rewards or outcomes in life are controlled either by an individual’s actions (internality) or by other forces (externality) (Spector, 1988). Individuals with an internal locus of control tend to be more satisfied with their jobs than those with an external locus of control, rate their supervisors higher on consideration and initiating structure, report less role stress, perceive more autonomy and control, and enjoy longer job tenure (Spector, 1982).
Lee, Ashford, and Bobko

analytic evaluation of over 100 studies and concluded that a high level of perceived control, measured as the degree of autonomy or participation in decision making an individual enjoys was associated with high levels of job satisfaction, organizational commitment, motivation, and performance and low levels of physical and psychological symptoms of stress.

In this article, we propose that perceived control plays an especially important role in the functioning of a particular type of individual, those exhibiting high levels of Type A behavior. The Type A behavior pattern is an epidemiological construct originating from Friedman and Rosenman’s (1959, 1974) clinical observations of patients with coronary heart disease. Those authors described the pattern as “a complex of emotional reactions” (1974: 69) characterized by excessive achievement striving, competitiveness, time-urgency, and aggressiveness. Researchers have assumed that a need for control motivates people with high levels of Type A behavior (Glass, 1977). This need is thought to underlie their concern for competition and their fear of missing deadlines or wasting time. Glass (1977) also argued that these individuals’ constant struggle to maintain control over their environment results in heightened physiological activity and eventual high risk for coronary heart disease. Research on Type A behavior has suggested that it is a risk factor in coronary heart disease (Cooper, Detre, & Weiss, 1981; Dembroski, Weiss, Shields, Haynes, & Feinleib, 1978; Matteson & Ivancevich, 1980). Further research has suggested that the anger-hostility dimension of the Type A construct, typically measured by Cook and Medley’s (1954) hostility scale, is the aspect of the pattern most predictive of coronary heart disease (Barefoot, Dallstrom, & Williams, 1983; Booth-Kewley & Friedman, 1987; Williams, Barefoot, & Shekelle, 1985) and that the global Type A behavior pattern generally demonstrates a positive association with academic performance (Glass, 1977; Matthews, Helmreich, Beane, & Lucker, 1980; Ivancevich & Matteson, 1988; Taylor, Locke, Lee, & Gist, 1984).

The purpose of the present study was to examine the moderating role of perceived control on the relations of Type A behavior to job performance, job satisfaction, and somatic complaints. Although previous research (Davidson & Cooper, 1980; Glass, 1977) has demonstrated that people exhibiting Type A behavior respond to the need for control by striving to attain and maintain it, no one has examined the interactive impact of perceived control and Type A behavior on important outcomes of the control-striving process, including job performance and job satisfaction. If such individuals constantly strive to achieve more and more in order to feel in control, the extent to which they perceive that they are actually in control ought to have important implications.

Two arguments underlie this contention. First, when perceived control is low, people with high levels of Type A behavior may be distracted from concentrating on their performance tasks per se as they divert effort toward strategies to regain control. In contrast, those low on Type A behavior may not attend to the controllability of events as much as those high on Type A behavior (Prkachin & Harvey, 1988) and may simply live with the experience
of low control and thus remain focused on tasks. When a situation allows high perceived control, those high on Type A behavior should enjoy better performance and more job satisfaction than those low on Type A behavior because the need to reestablish control is not a distraction. Consequently, those high on Type A behavior should be more satisfied than those low on the behavior and their tendency to focus on tasks should result in strong feelings of self-efficacy, high performance goals, and high motivation to work on several projects at the same time. According to Taylor and her colleagues (1984), these mechanisms give those high on Type A behavior a performance advantage over others.

Second, according to Strube’s (1987) self-appraisal model, people high on Type A behavior place a high value on the attainment and accurate assessment of success, productivity, and accomplishment. Compared to those low on Type A behavior, the former respond to situations that create uncertainty about their abilities with greater attempts to generate diagnostic information. Situations of low perceived control might inhibit them from generating information regarding their abilities or from making personal or internal attributions for what they accomplished. These situations thereby reduce levels of motivation and satisfaction for those high on Type A behavior. On the other hand, situations in which perceived control is high may facilitate their ability to generate information to confirm their task-related competencies and therefore increase their motivation and job satisfaction. In essence, those high on Type A behavior need some perceived control to assess whether they have achieved something, and the conclusion that they have done so promotes satisfaction and performance.

Additionally, literature reviews by Ganster (1986) and Ivancevich and Matteson (1988) have indirectly suggested the importance of perceived control in the relationship between Type A behavior and work-related outcomes. For example, those authors discussed research findings showing a positive association between Type A behavior and individual performance in academic settings, using both professors and students as subjects. However, results concerning this link in nonacademic organizations have been decidedly mixed (Ganster, 1986). It is possible that students and professors have higher perceived control over how they spend their time and the order in which they undertake tasks than people in other settings. This perception of control might reduce distraction and afford a good opportunity for those high on Type A behavior to verify their task-related competencies. As a result, they will be more satisfied and perform better in these settings than other individuals. These arguments suggest that

**Hypothesis 1:** Individuals exhibiting high levels of Type A behavior will perform better and be more satisfied with their jobs than individuals exhibiting low levels, especially when the former perceive that they have a high level of control in their jobs.

The relationship between Type A behavior and reported somatic symptoms is also of interest. Previous research has provided mixed support for
this relationship. Although some investigators (Carver, Coleman, & Glass, 1976; Carver, DeGregorio, & Gillis, 1981; Matthews & Carra, 1982) have found a negative relationship between Type A behavior and the reporting of negative physical symptoms, others have found a positive relationship between Type A behavior and the frequency and severity of reported symptoms of fatigue and tension (Mayes, Sime, & Ganster, 1984; Smith & Sheridan, 1983; Woods & Burns, 1984). The notion of perceived control may help resolve these conflicting findings. Perceived control may play a role in producing the negative stress impact found in those high on Type A behavior (Carver & Humphries, 1983; Glass, 1977). Strube (1987) proposed that such individuals will find uncertainty stressful. However, when people can locate or diagnose their ability levels, as they can when perceived control is high, individuals high on Type A behavior should experience less stress and physiological response than they will in situations of low perceived control. Further, the distracting quality of low-control situations ought to induce stress for those high on Type A behavior. Thus, Hypothesis 2: Individuals exhibiting high levels of Type A behavior will report more somatic complaints than individuals exhibiting low levels, especially in situations in which perceived control is low.

METHODS

Respondents and Procedures

The respondents for this study were employees of a variety of organizations in the northeastern United States. The first group consisted of 59 industrial hygienists who were members of the Delaware Valley Section of the American Industrial Hygienist Association. The second consisted of 71 internal auditors, members of the Philadelphia Chapter of the Institute of Internal Auditors, Inc. Members of these two associations received a copy of a questionnaire by mail with a cover letter written by the president of their association explaining the purpose of the survey and stating that their participation was voluntary. All respondents were assured of confidentiality and given self-addressed, stamped envelopes in which to mail their completed questionnaires to us. The response rate for the industrial hygienists was 24 percent, and for the internal auditors it was 25 percent.

The third group was 35 registered nurses attending an evening and weekend nursing program at a major university in the Northeast. Questionnaires and envelopes were distributed by instructors who explained the purpose of the study and stated that participation was voluntary and responses confidential. The response rate for this group was 35 percent. The fourth and last group consisted of all 18 full-time employees among the people attending a class offered by the senior author. These respondents were also assured of confidentiality and given self-addressed, stamped envelopes in which to mail their completed responses back to us. The combined response rate for the first three groups of respondents was 28 percent.
and the response rate for the fourth group was 100 percent. The combined response rates for all respondents falls slightly below the 31 to 62 percent range found for previous mailed surveys on Type A behavior (Boyd, 1984; Lee & Gillen, 1989; Matteson, Ivancevich, & Smith, 1984; Taylor et al., 1984). The heterogeneity of the 183 respondents’ jobs and organizations was beneficial in that having data from only one organization can limit the generalizability of results and variance on predictor variables.

All respondents were also asked to give their supervisors a short (one-page) performance appraisal questionnaire to fill out; 91 supervisors returned completed questionnaires.

In the overall group, 60 percent were men and the mean age was 38.5 years. All respondents indicated that they had some graduate school training. The mean level of length of company tenure was 8.7 years, and the average tenure in the current division was 4.7 years.

Measures

The strength of the Type A behavior pattern was assessed with a modification of the Thurstone Temperament Schedule’s Activity Subscale (TTS) (Thurstone, 1953). Carmelli, Rosenman, and Chesney (1987) reported that the TTS showed the greatest stability of a group of self-report measures of Type A behavior. Similarly, Mayes and colleagues (1984) argued that the TTS was more reliable, had stronger construct validity, and showed as good or better agreement with structured interviews than other self-report measures of Type A behavior. The TTS includes 20 items, such as “In conversation, do you often gesture with your hands and head?” and “Do you ordinarily work quickly and energetically?” The five-point response scale ranges from “definitely true” (5) to “definitely false” (1). Preliminary factor analyses of the TTS items failed to produce multiple factors. Ultimately, we summed all TTS items to form a composite Type A score to permit comparisons between our findings and previous research using the entire TTS. High scores on the TTS represent a high level of Type A behavior. The mean of 69.9 and standard deviation of 8.64 were comparable to those found in previous research (Byrne, Rosenman, Schiller, & Chesney, 1985; Mayes et al., 1984).

The measure of perceived control used here was a scale we used in previous work to measure powerlessness (Ashford, Lee, & Bobko, 1989). However, the content of the scale’s three items directly reflects our definition of perceived control as the belief that a response that can influence an event’s aversiveness is at hand. The items are: “I have enough power in this organization to control events that might affect my job,” “I understand this organization well enough to be able to control things that affect me,” and “In this organization, I can prevent negative things from affecting my work situation.” For these items, 1 equaled “strongly disagree” and 5, “strongly agree.”

Six items were used to assess an individual’s general job performance. Examples are “How effective is this employee in his or her job?” (1 = not at all effective and 7 = extremely effective), “Please rate the quality of the work
this employee produces” (1 = low quality and 7 = high quality), and “Please rate the quantity of work this employee produces” (1 = low quantity and 7 = high quantity). We matched immediate supervisors’ answers to particular respondents using code numbers.

Job satisfaction was assessed with five items from the general satisfaction scale of the Job Diagnostic Survey (JDS) (Hackman & Oldham, 1975). We measured somatic complaints using the ten-item scale developed and evaluated by Caplan, Cobb, French, Harrison, and Pinneau (1975), which asks respondents how frequently (never, once or twice, three times or more) they have been bothered by symptoms such as “heart beating hard,” “dizzy spells,” and “trouble sleeping” in the past month.

A final measurement concern was controlling for gender and age. Previous Type A research has focused on middle-aged, middle-class, employed American men. Price (1982) noted apparent gender differences in how people manifested specific Type A behaviors and characteristics, and Friedman and Rosenman (1974) suggested that Type A behavior increasingly manifests as people grow older. Therefore, we controlled for both gender and age in all the regression analyses conducted.

RESULTS

Table 1 shows the means, standard deviations, alphas, and intercorrelations of the variables used in this study. The extent of Type A behavior was positively related to performance ratings ($r = .25$, $p < .01$) but unrelated to job satisfaction ($r = -.02$, n.s.) and somatic complaints ($r = .07$, n.s.). Perceived control was unrelated to Type A behavior, performance, or somatic complaints, but it was positively related to job satisfaction ($r = .33$, $p < .01$). Since Type A behavior was unrelated to perceived control, the possibility that people high on Type A behavior perceived more control than those low on Type A behavior in the same situation cannot serve as an alternative explanation for the hypothesized results of this study.

To test perceived control’s hypothesized moderating effect in the rela-

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>s.d.</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>1. Performance</td>
<td>33.03</td>
<td>5.7</td>
<td>(.82)</td>
<td></td>
<td></td>
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<td>2. Job satisfaction</td>
<td>25.58</td>
<td>5.4</td>
<td>-.15</td>
<td>(.81)</td>
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<td></td>
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<tr>
<td>3. Somatic complaints</td>
<td>12.71</td>
<td>2.8</td>
<td>.06</td>
<td>-.23**</td>
<td>(.77)</td>
<td></td>
<td></td>
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<tr>
<td>4. Type A behavior</td>
<td>69.92</td>
<td>8.6</td>
<td>.25**</td>
<td>-.02</td>
<td>.07</td>
<td>(.69)</td>
<td></td>
</tr>
<tr>
<td>5. Perceived control</td>
<td>9.01</td>
<td>2.6</td>
<td>-.07</td>
<td>.33**</td>
<td>-.03</td>
<td>.02</td>
<td>(.83)</td>
</tr>
</tbody>
</table>

$^a$ N = 183, except for performance, which was based on the responses of 91 supervisors.

$^b$ Values in parentheses represent coefficient alphas.

* $p < .05$

** $p < .01$
tion of Type A behavior to performance, job satisfaction, and somatic complaints, we used hierarchical moderated regression analysis (Cohen & Cohen, 1975). In this type of analysis, a hypothesized moderator effect is supported if the interaction term significantly increases the variance explained by the predictors. To test perceived control’s moderating effect in an equation with the supervisors’ performance ratings as the dependent variable (model 1 in Table 2), we entered the demographic variables first, then Type A behavior, perceived control, and finally, the interaction of Type A behavior and perceived control. Table 2 presents the results of these regression analyses.

Results indicate that the interaction of Type A behavior and perceived control was significantly related to performance ($\beta = .26, \Delta R^2 = .05, p < .05$), job satisfaction ($\beta = .19, \Delta R^2 = .03, p < .05$), and somatic complaints ($\beta = .19, \Delta R^2 = .03, p < .05$). Thus, all the interactions were statistically significant.

To further explore the direction of the moderating relations, we split the respondent group into those with high levels of perceived control and those with low levels, using the median value as the dividing point. We then correlated Type A behavior with performance, job satisfaction, and somatic complaints within subgroups. The results demonstrate that Type A behavior and performance were highly correlated when perceived control was high ($r = .51, p < .01$) but showed no relationship when perceived control was low ($r = .01, \text{n.s.}$). In addition, when perceived control was high, Type A behavior was positively related to job satisfaction ($r = .15, p < .10$) and somatic complaints ($r = .15, p < .10$). On the other hand, when perceived control was low, Type A behavior was negatively associated with job satis-

<table>
<thead>
<tr>
<th>1. Performance</th>
<th>Variables</th>
<th>$\beta$</th>
<th>Overall $R^2$</th>
<th>$\Delta R^2$</th>
</tr>
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<tbody>
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<td>Age and gender</td>
<td></td>
<td></td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Type A behavior</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Perceived control</td>
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<td>.09</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Behavior $\times$ control</td>
<td>.26*</td>
<td>.14</td>
<td>.05*</td>
<td></td>
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<tr>
<td>2. Job satisfaction</td>
<td>Age and gender</td>
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<td>.04</td>
<td></td>
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<tr>
<td>Type A behavior</td>
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<td></td>
</tr>
<tr>
<td>Perceived control</td>
<td>.24**</td>
<td>.13</td>
<td>.09**</td>
<td></td>
</tr>
<tr>
<td>Behavior $\times$ control</td>
<td>.19*</td>
<td>.16</td>
<td>.03*</td>
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<tr>
<td>3. Somatic complaints</td>
<td>Age and gender</td>
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<td>Type A behavior</td>
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<tr>
<td>Perceived control</td>
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<tr>
<td>Behavior $\times$ control</td>
<td>.19*</td>
<td>.07</td>
<td>.03**</td>
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* $p < .05$
** $p < .01$
faction ($r = -.24$, $p < .05$) and somatic complaints ($r = -.10$, n.s.). We assessed the significance of the differences in these correlations using Fisher’s $r$-to-$z$ conversion for independent correlations (Cohen & Cohen, 1975: 50–52). All pairwise differences in correlations between the subgroups with high and low levels of perceived control were significantly different from zero ($p < .05$).

**DISCUSSION**

Support emerged for the hypothesized significance of the interaction with performance and job satisfaction in this study. Results of the moderated regression equations indicate that perceived control interacts with Type A behavior to facilitate high job performance and satisfaction: the performance of people high on Type A behavior is enhanced in situations in which they have a high degree of perceived control. The results further suggest that in order to motivate highly competitive, achievement-oriented Type A individuals, organizations and supervisors should consider taking steps to increase their perceived control. Such steps might include reducing role ambiguity and role conflict, participatively setting goals with these individuals, placing them in relatively autonomous jobs, and providing them with tasks in which they have a high degree of control over work scheduling and work methods. These types of interventions should increase both performance and job satisfaction. However, some of the effects found in this study were small. Given the correlational nature of this study and the interactive model used, future research should try to replicate these findings, preferably using longitudinal or field experiment designs.

When somatic complaints was the criterion, a significant interactive effect of perceived control again emerged. However, the weak but positive relationship between Type A behavior and somatic complaints when perceived control was high is somewhat perplexing. It may indicate that maintaining control is of paramount importance to Type A individuals (Glass, 1977), who may react strongly to their internal demands for maintaining control in their occupational environments by working harder, longer, and faster. Although such coping behaviors may result in high job performance ratings, there is a small probability that such individuals pay a price in somatic distress. Future studies should assess if the short-term somatic complaints reported depress long-term job performance and raise health risks.

The significance of the correlation ($r = .25$, $p < .01$) between Type A behavior and job performance regardless of perceived control levels also provides support for the notion that Type A individuals tend to perform better at work than others. Our finding replicates those of numerous studies conducted in laboratory and academic settings (Glass, 1977; Matthews et al., 1980; Ovcharchyn, Johnson, & Petzel, 1980; Taylor et al., 1984). However, field studies conducted by Lee and Gillen (1989) and by Matteson and colleagues (1984) on people selling consumer products and insurance failed to support the Type A behavior-job performance relationship. Ganster (1986)
suggested that job types may moderate that relationship. However, Ganster and Mayes (1988) did not find such a moderating effect. Although the number of organizations and sample size were rather small in that study, which is unpublished, we did not find any statistically significant moderating effect in the current data either.²

In sum, the results of this study suggest that people with high levels of Type A behavior and perceived control tend to be more productive, have higher job satisfaction, and report more somatic complaints than Type A people low in perceived control. Clearly, perceived control is a critical moderating variable in the study of Type A behavior in organizational settings. However, contrary to Spector’s (1986) finding, perceived control itself was unrelated to performance in this study. It is possible that differences in the measures of perceived control account for the difference in findings. In Spector’s meta-analytic review, measures designed to tap both autonomy and participative decision making were used as control indexes. The autonomy measures included came primarily from Hackman and Oldham’s (1975) JDS and from Sims, Szilagyi, and Keller’s (1976) Job Characteristics Inventory. Measures of participation were far less consistent across the studies reviewed, but some studies included Siegel and Ruh’s (1973) and Vroom’s (1959) measures. These measures did not directly assess perceived control as we have defined it, whereas our perceived control measure specifically reflected that definition.

Previous studies have focused on examining the need for control and coping behaviors of individuals high on Type A behavior in relatively short-term, well-controlled laboratory environments. This study, however, examined people working in a variety of organizational settings using outcome variables relevant to those settings. Ganster (1986) noted that the Type A construct is particularly interesting to organizational researchers when the laboratory can be generalized to a work environment in which time-based demands, competition for limited resources, and threats to internal control are predominant. This study provides an important initial look at how perceived context may interact with Type A behavior to affect important outcomes. Future studies should also examine the effects of perceived organizational environment on the health, career choices, career advancement, work accomplishment, and quality of life of people with high levels of Type A behavior.

REFERENCES


² The results of these analyses can be obtained from the senior author upon request.


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