

Disaster Responses Within the Tourist Industry*

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Reflecting a series of converging international trends, the tourist industry represents a vulnerability of catastrophic potential. Interview and questionnaire data obtained from 185 owners or managers in nine U.S.A. communities, provide answers to five questions: (1) What is the extent of disaster evacuation planning? (2) What factors account for the variations in this planning? (3) What behavioral patterns occur during actual evacuations? (4) What factors account for these pattern variations? and (5) What are the policy implications of these behavioral assessments? While many larger firms managed by more professional staff have completed extensive disaster evacuation planning, the overall record is very spotty. Hence, major initiatives both within the industry, and by emergency managers at all levels of government, are needed to reduce this rapidly expanding vulnerability.

Disaster Responses Within the Tourist Industry

Reflecting a series of converging international trends, the tourist industry will continue to experience rapid growth well into the next century. With such growth, much of which will occur in higher risk areas, the industry represents a vulnerability of catastrophic potential. Heretofore only a few researchers have examined this matter (Murphy and Bayley 1989) although specialized literature reviews have underscored this void in the knowledge base that has accumulated during the past forty years (e.g., Sorensen et al. 1987, p. 133). In sharp contrast, many other areas of disaster response and recovery reflect significant bodies of theoretically informed empirical research (for summaries see Barton 1969, Dynes 1970, Quarantelli 1976, Drabek 1986).

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This paper presents a summary of the major findings and conclusions from the first empirical exploration of one aspect of this larger research agenda—evacuation behavior among tourist business executives. Five basic questions structure the analysis: (1) What is the extent of disaster evacuation planning? (2) What factors account for the variations in this planning? (3) What behavioral patterns occur during actual evacuations? (4) What factors account for these pattern variations? and (5) What are the policy implications?

Theory and Method

The research objectives reflected a stress-strain framework for organizational analysis (Haas and Drabek 1973; Drabek and Haas 1974; Drabek 1987, 1990). Five key interpretations of executive behavior were applied from this perspective:

(1) Executive behavior is constrained by a complex mix of expectations reflecting normative, interpersonal, and resource dimensions of organizational structure.

(2) The criteria used by managers in assessing proposed policy changes reflect judgments concerning organizational autonomy, security and prestige.

(3) Ascertaining and coping with uncertainty is the key task of all managers.

(4) Disaster planning is an unique resource that effective executives use to reduce one type of uncertainty and thereby enhance their capacity to protect the autonomy, security and prestige of their organization.

(5) Executives confront a series of strains that are specifically related to disaster planning (see Drabek 1990 for elaboration).

These interpretations provided the context for face-to-face interviews with 185 owners or managers of tourist businesses selected within nine U.S.A. communities. Among the topics covered during the interviews were: type of evacuation planning, plan origins, planning process, plan content, decision-making process, plan implementation, plan dissemination and training, previous disaster experiences, and general policies.

Three communities were picked for study because extensive efforts had been made by local government to stimulate disaster evacuation planning. The other six were selected after two disaster events precipitated extensive evacuation, i.e., flooding in two counties in Washington state (1990) and Hurricane Bob, which threatened the Outer Banks of North Carolina before zipping over Cape Cod and Martha's Vineyard (Massachusetts) (1991).

Bob continued moving northward and finally made landfall along the southern coast of Maine.

All executives in the six post-disaster communities (n=120), were queried about these topics plus their response to the actual disaster event. Information was obtained regarding warning messages received, confirmation processes, decision process used, and the relevance of their prior planning efforts to this specific event. Additionally, a mail-back questionnaire was used to collect information regarding background information on the executive (e.g., years of formal schooling), organizational characteristics (e.g., number of full time employees), and a series of opinion items pertaining to disaster evacuation policy issues and needs.

Local government officials and members of the project advisory committee provided liaison assistance with business executives. As a result only a few refusals were encountered when interviews were requested. Following each interview a mail-back questionnaire was given to the executive. Telephone follow-ups were completed with nonresponders about one month afterwards. All of these factors contributed to the exceptional return rate (90%). Much more so than any field work I have completed during the past 30 years, however, this effort required intensive persistence. Just arranging for interview appointments and then following-up after frequent postponements tested my tenacity. It was very clear from the outset that disaster evacuation planning was not a high priority among this population of very busy business executives.

Disaster Evacuation Planning

Several approaches were used to assess the extent of disaster evacuation planning completed by these 185 executives. As indicated above, numerous questions were directed toward their planning efforts, factors that simulated them, perceptions of adequacy, potential problem areas, prior evacuation experiences, lessons learned, and so on. Questionnaire items provided additional cross-referencing. Some made their planning documents available and these were assessed in detail.

All of this information was reviewed for each firm so as to accurately code responses for nine planning criteria. These were: written plan, informal plan, functional approach, property specific, revision annually, regular staff training, annual exercise, planning process emphasis, and corporate and CEO commitment. Each criterion item was coded as "yes" or "no". This coding process was done consistently to error on the side of a "yes" response. Thus, any type of document that was referred to as a "disaster evacuation plan" was counted as a "yes" regardless of its quality, date,

distribution, or what have you. While empirically accurate, this coding process was done consistently across all nine criteria for the 185 firms. This data set thereby presents the most positive side of the tourism industry.

Table 1 presents the results. This first empirical assessment of disaster evacuation planning within the tourist industry documents serious vulnerability. For example, barely one-fourth of firms (28%) had any type of written plan that might guide managerial and employee responses. While nearly two-thirds (64%) indicated some type of informal planning, this usually reflected only very general discussions about events that occurred elsewhere and what might be done if a similar circumstance confronted their firm. These discussions typically were property specific, however, unlike some of the written plans I encountered that were comprised of general guidelines that had been issued by a divisional or corporate office. Usually these had been filed away upon receipt without much, if any, follow-up that could have transformed the generalities into site specific behavioral guidelines. Slightly less than one-quarter (24%) of all firms had plans that reflected a functional approach, i.e., multihazard and components that reflected mitigation, preparedness, response and recovery. So too, similar proportions had regular staff training (24%) and revised their plan annually (22%).

Disaster research has demonstrated that unless response and recovery plans are designed by those who will implement them, they are destined to fail (Quarantelli 1984; Drabek and Hoetmer 1991). Less than one-fourth (22%) of these executives indicated that their planning process had involved other employees who would be required to implement emergency procedures. So too, only 24 percent reported that there was anything more than token commitment for such activities by corporate headquarters or the chief executive officer (CEO).

Yet, even more concerning than this response portrait was the clear misperception that their current level of planning was adequate. Threat denial and assumptions that "we can wing it" acted in concert to curb disaster planning initiatives and encouragement from external groups, be they corporate or community based. Related analyses indicated that three-fourths (75%) of these executives or their superiors believed that disaster evacuation planning was *not* cost effective.

Evacuation Planning Constraints

Despite the bleak picture revealed in the above data that clearly documents significant vulnerability within the tourism industry, some firms were well prepared. To ascertain the specific factors that constrain such planning,

the disaster evacuation planning index (DEP index) was created. A total score was determined by summing the responses to nine criteria, i.e., "yes" = 1; "no" = 2. As would be expected, there was some degree of intercorrelation among these nine criteria, but the overall pattern indicated that they could serve as a useful tool to explore social constraints (see Table 2). A split-half reliability test indicated internal consistency ($r = .629$).

Extensive analyses were completed on over three dozen variables that reflected managerial, firm, and community characteristics. Given a variety of considerations, 15 qualities were identified that were significantly correlated with the DEP Index. As indicated by the listing in Table 3, these were used in a regression model to ascertain their relative explanatory power. This model accounted for nearly two-thirds of the variance in the DEP Index (Adjusted $R^2 = .615$). Elsewhere (Drabek 1994) I have demonstrated that this "integrated" characteristics model, which includes qualities reflecting managers, their firms, and the community, provided more predictive power than alternative models comprised of characteristics reflecting only one of these three layers of constraint.

In the bottom portion of Table 3, the components of a more parsimonious model are listed. This six variable model was accepted after numerous alternatives were examined. Within this data set, these six qualities provided the best predictive base for accounting for the variations in the extent of disaster evacuation planning among these 185 firms.

What factors account for the variations in the extent of disaster evacuation planning among tourist businesses? Our six variable model indicated that the key constraints are: (1) intraorganizational factors, i.e., requirements of the corporate office or specific government mandates given the firm mission; (2) assistance being provided by the local government emergency manager; (3) a larger number of full time employees; (4) high level of managerial risk perception; (5) managerial professionalism; and (6) presence of a community disaster sub-culture. Of course, larger data bases, including cross-national comparisons, will expand our knowledge base far beyond these initial models. But even this first empirical glimpse into the dynamics and scope of disaster preparedness within the tourism industry provides important policy information and thereby again demonstrates the unique potential for application inherent within disaster research (Dynes and Drabek 1994).

Behavioral Variations

Executives in six of the communities studied recently had confronted a serious threat. Most (81%) had responded by initiating a partial or complete

evacuation of their firm. Over one-half (57%) closed completely although nearly two-thirds (64%) of the total sample permitted some employees or customers to remain on property during the threat period. In many cases this reflected the fact that employee housing was at far greater risk than the business location. During the evacuation period, 42 percent of the managers stayed on the firm property and over one-fourth (26%) indicated that some employees stayed as well. In many instances employees were joined there by family members for whom the business was a place of refuge.

Whether they evacuated or not, most engaged in some type of protective action such as boarding up windows, removing outside furniture and other moveable objects, and the like. Behaviorally, many (48%) took such actions prior to local government decisions to issue evacuation advisories and some (21%) actually evacuated their business prior to such advisories. The array of responses to these five behavioral actions are displayed in Table 4.

Responses to these five actions were coded to establish an index of evacuation behavior. Collectively, the five items differentiated managers who did not evacuate at all from those that did so very early. This procedure parallels the three and two-fold divisions made by Lindell and Perry (1992) in their study of public responses to disaster warning. It is different, however, because the five items included additional elements of information that permitted a more complex measure of pattern differences.

Each of the five items was assigned an equal weight of 4 points. The scoring pattern was arranged for consistency. That is, the item on "degree of evacuation" was scored so that: "none" = 1; "partial" = 2; "all but skeleton staff" = 3 and "total evacuation" = 4. Similarly, "status of firm" was scored as follows: "remained open" = 1 and "closed" = 4. The other items were scored similarly.

The distribution of total scores is presented as Table 5. Note that there are key breakpoints that represented clusters of scores reflecting the interdependence among the items. Substantively, however, these results indicated that only two managers did not evacuate, kept their firms open, had employees or customers on property, did not board up or take any other mitigative action, and were coded as "other" on the last item (time of evacuation) since they did not evacuate. This overall pattern was scored as a "5" on the Evacuation Behavior Index. In contrast, there were nine managers who were assigned a score of "20". Their pattern reflected the logical extreme response set across the five items. That is, they reported "total evacuation" of their firm, which was "closed" and no employees or customers remained on property. They also took various mitigative actions "prior to the local government decision" and also evacuated their business

prior to such a decision. While crude, this index displays the first empirical documentation of the range of behavioral responses by tourist industry executives.

This index also highlights the complexity of evacuation behavior which can best be conceptualized as a series of interdependent processes. My interviews revealed 10 different processes that collectively define the core decision areas that business managers confront. These are: warning, confirmation, mobilization, customer information requests, customer shelters, employee concerns, transportation, employee sheltering, looting protection, and re-entry issues. Typically, the decision to evacuate a firm is not a single decision, but rather reflects an incremental process. There is not one decision, but many.

Evacuation Behavior Constraints

What social factors pattern the range of evacuation behaviors among tourist business managers? The Evacuation Behavior Index was correlated with a large number of variables reflecting aspects of managerial, organizational, and community variation. Numerous multivariate models were assessed and it was discovered that managers who engaged in more rapid and elaborate evacuation behavior had done more extensive planning, were responsible for more complex and larger lodging firms that had been evacuated previously. These qualities were found to fit with a few others so as to produce a final model comprised of seven variables. These are listed in Table 6 which also includes two alternative models (3 variable and 8 variable). While varied, each of these models accounted for less than one-half of the variance in the EB Index. They were the best predictors discovered within the data base, however, after extensive exploration.

These three multivariate models carry us a long way toward understanding the types of social factors that constrain the evacuation behavior of business executives. Organizational mission, i.e., whether the firm provides lodging or some other type of tourist service such as food, travel or entertainment is the decisive factor (partial correlation coefficient = .494). This is followed by the risk perception of the manager, i.e., how likely is it that an event will occur in the next decade that will require you to evacuate your firm? If corporate or governmental mandates have been enforced, e.g., U.S. Coast Guard regulations for marina operations, and the firm reflects higher levels of complexity (vertical differentiation was measured by the number of levels of supervision reported), more rapid evacuation behavior can be anticipated. Message sources, which have been found to influence

public responses (Drabek 1969, 1986), also figure into the equation as does prior planning and managerial professionalism.

It is obvious, however, that this social dynamic is much more complex than this initial explanation reveals. When cross-national comparisons are considered, undoubtedly the complexity will grow exponentially. Clearly this research agenda merits high priority in the coming decade as larger numbers of persons are placed at risk.

Policy Implications

What are the public policy implications of these analyses? There are many. And subsequent catastrophic events like Hurricanes Andrew and Iniki that struck one year after Bob, have further exposed the vulnerability of the tourist industry. Most recently, Hurricane Emily (August, 1993) approached the Outer Banks of North Carolina and reminded all that persons vacationing in such areas can be at extreme risk. Each of these events could have been much more tragic, however, if their tracks had varied slightly to have impacted more developed areas. Such realizations have led some to call for major mitigative actions. And clearly future development in high risk areas, regardless of the source of the risk, will remain at the center of controversy in hundreds of local communities for the foreseeable future. Aside from such mitigative strategies as less risky land use and improved building standards, there are four policy implications that merit careful examination.

1. *The tourist industry represents a vulnerability of catastrophic potential, but the risk is not fully recognized by those within it.* Nearly one-half (47%) of these executives indicated that new disaster evacuation policies and procedures were needed for their firm. Another one-fifth (21%) were unsure. At least a majority of the 185 managers surveyed were willing to acknowledge they have a problem. The inadequate degree of evacuation planning that had been completed, however, clearly demonstrated that the need far exceeds current levels of awareness. Indeed, the reality of threat denial was reflected in most of the interviews (Drabek forthcoming). Over and over again I heard statements like this. "Located where we are, we probably will not be hit again." Clearly, larger data bases are required to assess such perceptions of vulnerability and extent of planning with more statistical precision. In some communities, like the first three I selected where local government initiatives had been implemented, the awareness of the need for and actual implementation of disaster evacuation planning processes may be better than others. Prior to the creation of such data sets,

however, the alarm must be sounded. The tourist industry represents a ticking time bomb. It is not a question of "if", only a matter of "when".

2. *Community partnerships comprised of local emergency managers and tourist industry representatives should be initiated to stimulate greater awareness of the current vulnerability and to encourage implementation of preparedness plans.* Even the best designed business plan is destined to fail if the community level disaster response capacity is inadequate. Support of community disaster planning is cost-effective for tourist businesses. And there are some locations, like Galveston, Texas, where such partnerships are alive and well. But overall the national picture appears to be very spotty. Disaster preparedness is a two-way street. Many of the executives I interviewed who had done the most extensive planning for their firm readily acknowledged the important contribution made by their local emergency manager. As noted above, this was one of the key social factors that patterned the extent of their planning. The opportunity for action is there, what remains to be done is clear. Behavioral research like that reported in this paper can be used to sound the alarm in both communities—government and business—and thereby stimulate social action *before* disaster strikes. And in communities where the leadership fails to act, behavioral research conducted after future tragedies will take the form of social criticism, as it should and must.

These 185 executives clearly indicated that such partnerships would be welcomed. For example, in the policy opinion section of the questionnaire, a clear majority (72%) indicated that local governments should provide more disaster evacuation training for private sector business executives. They were far less certain about exercises, however. Only 39 percent endorsed local government assistance for this. But clearly this is a rich environment that must be nurtured by local emergency management officials and leadership within the tourism industry.

3. *The leadership within tourist industry trade associations and professional organizations should initiate more activities to increase an awareness of and support for disaster evacuation planning.* One of the opinion items included in the policy section of the questionnaire read as follows: "The trade associations and other professional organizations representing firms like ours should demonstrate more interest in disaster evacuation planning." The results were informative. A clear majority (62%) either agreed or strongly agreed with this item. Only three percent strongly disagreed. One-fifth (20%) were unsure and the remainder (15%) disagreed. My interviews elicited less favorable opinions so I suspect that these numbers reflect a certain social desirability bias. Be that as it may, it is clear

that a significant proportion of these executives already see such activities as desirable and legitimate.

What might such associations do? When I probed on this issue the responses were direct and diverse. Disaster planning materials and awareness could be emphasized through a variety of strategies. When I reviewed all of the interviews on this topic, the following recommendations were highlighted repeatedly: (1) motivational speakers (national, state, local meetings); (2) trade association publications; (3) distribution of example policies, plans, and checklists; (4) training videos and materials; and (4) specialized seminars and workshops.

There may be those who will point out that all of these activities are being done now. Specific examples of each were cited to me during certain interviews. But the point is that what has been done is not enough. More is needed, expected and desired.

4. *Educational initiatives should be implemented to insure that university curricula in tourism, travel, and hotel administration include more emphasis on disaster management, including mitigation, preparedness, response and recovery.*

Following the model that was implemented successfully within public administration during the mid-1980s, officials within the Federal Emergency Management Agency (FEMA) should initiate a partnership with tourism professional associations so that university faculty could attend an intensive summer long workshop. Like the one sponsored by the National Association of Schools of Public Affairs and Administration (NASPAA), this workshop should be designed to stimulate the incorporation of disaster research materials and case studies into the general curricula offered by schools of tourism and hotel, restaurant, and travel administration. This can be done through implementation of both new courses focused on emergency management and the integration of teaching modules focused on such matters within existing courses. Furthermore, this workshop should challenge all attendees to create new course materials for such instruction and to devise a peer exchange system to maintain its vitality and diffusion. If done effectively, a modest funding investment could have far reaching consequences (see Drabek and Hoetmer 1991 for details regarding this initiative in public administration).

The first step has been taken to fill an important void in the knowledge base on human system responses to disaster. This first step has documented an important vulnerability that is expanding at an alarming rate. The broad contours of an international research agenda are now clarified somewhat and hopefully in the coming decade we will see many drawn to the immense

task ahead. While that work is in process, however, an action agenda should be pushed forward. To the extent that it is not, the tourism industry will continue to provide case studies of organizational failure, although they will be blunted by acts of individual heroism. Those who are being put at risk daily everywhere on the planet expect more. And they will demand more. Unhappy customers are not cost effective nor are law suites. That is why full participation in community based disaster management programs is both cost effective and socially responsible.

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Table 1. Extent of Disaster Evacuation Planning

Planning Criterion	Yes	No
Written Plan (WP)	28 (52)	71 (132)
Informal Plan (IP)	64 (118)	36 (66)
Functional Approach (FA)	24 (44)	76 (140)
Property Specific (PS)	77 (142)	23 (42)
Revision Annually (RA)	22 (41)	77 (143)
Regular Staff Training (RST)	24 (45)	75 (139)
Annual Exercise (AE)	5 (5)	95 (175)
Planning Process Emphasis (PPE)	22 (40)	78 (144)
Corporate and CEO Commitment (CO)	24 (45)	75 (139)

Table 2. Correlations Among Planning Criteria

Planning Criterion	X	S.D.	WP	IP	FA
Written Plan (WP)	1.717	.452	1.000	-.235**	.469**
Informal Plan (IP)	1.359	.481	-.235**	1.000	-.059
Functional Approach (FA)	1.761	.428	.469**	-.059	1.000
Property Specific (PS)	1.228	.421	.313**	.646**	.244**
Revision Annually (RA)	1.777	.417	.563**	-.144	.435**
Regular Staff Training (RST)	1.755	.431	.682**	-.128	.481**
Annual Exercise (AE)	1.951	.216	.305**	-.093	.286**
Planning Process Emphasis (PPE)	1.783	.414	.606**	-.183*	.539**
Corporate and CEO Commitment (CO)	1.755	.431	.766**	-.181*	.481**

Planning Criterion	PS	RA	RST	AE	PPE	CO
Written Plan (WP)	.313**	.563**	.682**	.305**	.606**	.766**
Informal Plan (IP)	.646**	-.144	-.128	-.093	-.183*	-.181*
Functional Approach (FA)	.244**	.435**	.481**	.286**	.539**	.481**
Property Specific (PS)	1.000	.291**	.279**	.123	.287**	.309**
Revision Annually (RA)	.291**	1.000	.759**	.424**	.636**	.698**
Regular Staff Training (RST)	.279**	.759**	1.000	.399**	.650**	.735**
Annual Exercise (AE)	.123	.434**	.399**	1.000	.430**	.399**
Planning Process Emphasis (PPE)	.286**	.636**	.650**	.430**	1.000	.773**
Corporate and CEO Commitment (CO)	.309**	.698**	.735**	.399**	.773**	1.000

*p < .01

**p < .001

Table 3. Integrated Characteristics Models for Predicting the Extent of Disaster Evacuation Planning

Integrated Characteristics Models	Beta Coefficients	Partial Correlation Coefficients
15 Variable Integrated Characteristics Model		
Disaster events	.196	.293
Consultants	.036	.055
Full-time security officers	.137	.195
Community factors	.109	.167
Risk perception	-.106	-.153
Member prof. orgs	-.057	-.085
Position title	-.073	-.101
Local emergency manager	.213	.284
Levels of supervision	.019	.025
Disaster committees	.090	.127
Degree there are written job desc.	-.027	-.036
Intraorganizational factors	.047	.061
Disaster sub-culture	.047	.061
How many full-time employees	-.159	-.183
Number of depts. or divisions	-.040	-.045
Multiple R = .804; R ² = .647; Adj. R ² = .615		
F = 20.61 p .001		
6 Variable Integrated Characteristics Model		
Disaster sub-culture	.057	.070
Member prof. orgs	-.092	-.135
How many full-time employees	-.239	-.315
Risk perception	-.117	-.161
Local emergency manager	.281	.348
Intraorganizational factors	.358	.416
Multiple R = .753; R ² = .567; Adj. R ² = .552		
F = 38.84 p < .001		

Table 4. Evacuation Behavior Items*

Item	Percentage of Managers Responding
1. Degree of evacuation	
none	19 (23)
partial	31 (37)
all but skeleton staff	14 (17)
total evacuation	36 (43)
2. Status of firm	
remained open	43 (52)
closed	57 (68)
3. Employees or customers stayed on property	
yes	64 (77)
no	36 (43)
4. Time when boarded up	
prior to local government decision	48 (58)
after local government decision	39 (47)
no awareness of local government decision	8 (10)
other, e.g., did not take action, no evacuation	4 (5)
5. Time when evacuated	
prior to local government decision	21 (25)
after local government decision	34 (41)
no awareness of local government decision	8 (10)
other, e.g., did not evacuate	37 (44)

*The number in parenthesis is the actual number of Phase II managers who responded in each code category listed; percentage based on exact number of Phase II managers who responded to the question.

Table 5. Evacuation Behavior Index

Index Score	Percentage of Managers Responding
5	2 (2)
7	8 (9)
8	14 (17)
9	13 (15)
10	3 (3)
11	3 (3)
12	4 (5)
13	3 (4)
14	4 (5)
15	13 (15)
16	7 (8)
17	2 (2)
18	13 (15)
19	7 (8)
20	8 (9)

*The number in parenthesis is the actual number of Phase II managers who responded in each code category listed; percentage based on exact number of Phase II managers who responded to the question.

Table 6. Integrated Characteristics Models for Predicting Disaster Evacuation Behavior

Integrated Characteristics Models	Beta Coefficients	Partial Correlation Coefficients
3 Variable Integrated Characteristics Model		
DEP Index	-.171	-.199
Organizational Mission	.454	.473
Risk perception	.300	.331
Multiple R = .627; R ² = .393; Adj. R ² = .378		
F = 25.08 p < .001		
8 Variable Integrated Characteristics Model		
Intraorganizational factors	-.179	-.207
Member professional orgs—how many	-.081	-.106
Message sources	.051	.066
Prior evacuation	-.022	-.024
Levels of supervision	.121	.154
Organizational mission	.463	.490
DEP Index	-.061	-.069
Risk perception	-.270	-.270
Multiple R = .669; R ² = .448; Adj. R ² = .408		
F = 11.27 p < .001		
Final Integrated Characteristics Model		
DEP Index	-.062	-.069
Message sources	.050	.065
Member professional orgs—how many	-.084	-.110
Levels of supervision	.121	.154
Organizational mission	.466	.494
Risk perception	.282	.322
Intraorganizational factors	-.177	-.206
Multiple R = .669; R ² = .448; Adj. R ² = .413		
F = 12.98 p < .001		