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# Predictors of supervisors' referrals of employees to an employee assistance program

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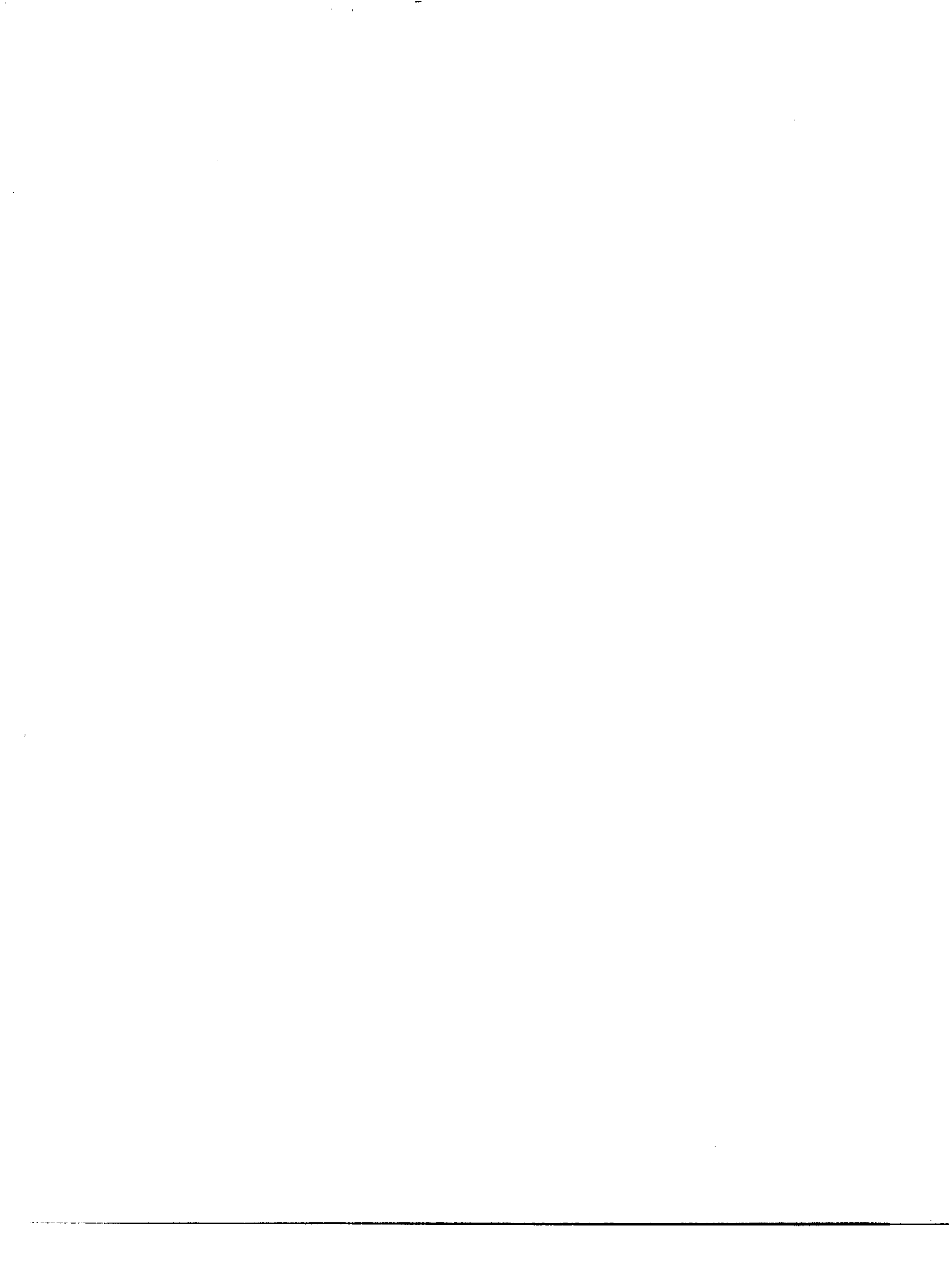
**Predictors of supervisors' referrals of employees to an employee  
assistance program**

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**Iowa State University, 1988**

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**Predictors of supervisors' referrals of employees  
to an employee assistance program**

**by**

**Janet Lovell Nord**

**A Dissertation Submitted to the  
Graduate Faculty in Partial Fulfillment of the  
Requirements for the Degree of  
DOCTOR OF PHILOSOPHY**

**Department: Professional Studies in Education  
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**Approved:**

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## CHAPTER 1. INTRODUCTION

Employee assistance programs (EAPs) had their origin in occupational alcoholism programs (OAPs). OAPs were established in the 1940s by industry to deal with alcoholic employees who caused monetary loss to industry because of increased absences and poorer quality work (Archer, 1977). In the early 1970s, most OAPs were renamed EAPs and expanded to deal with other employee problems, such as mental illness, relationship difficulties, and financial strain.

Many researchers have documented that supervisors have a poor record of making referrals of subordinates to EAPs (Beckman & Amaro, 1984; Beyer & Trice, 1981; Cahill & Volicer, 1981; Milstead-O'Keefe & Sudduth, 1981; Reichman, Levy, Young, & Herrington, 1982; Riediger, 1985; Schuft, 1983; Shain, 1985). The terms "poor referral rate" and "low referral rate" have been conceptualized as a supervisor not referring some or all of his/her subordinates who are experiencing job performance problems. Writers in the EAP field, as cited by Masi (1984), have documented that from 15% to 20% of the work force at any one time are experiencing poor job performance due to problems such as mental illness, alcoholism, and financial difficulties.

Because of the existence of low referral rates, several researchers have examined factors which affect supervisor referral rates. In the present paper's Review of Literature section pertaining to low supervisor referral rates, 10 variables which may affect those rates will be considered:

- (a) age and age-related variables of supervisors
- (b) beliefs of supervisors regarding the effectiveness of EAPs/OAPs
- (c) degree of support of the EAP/OAP by management, relevant unions,

- and their own immediate supervisor as perceived by supervisors
- (d) gender of supervisor and gender of subordinate with a job performance problem
  - (e) the existence of a supervisor network
  - (f) occupational category of the majority of employees supervised by the supervisor
  - (g) social distance between supervisor and employee with a job performance problem
  - (h) supervisors' attitudes toward their role in referral
  - (i) supervisor ideologies
  - (k) supervisor knowledge of the DAP/EAP.

The field of EAP/DAP research has not set forth a conceptual framework to incorporate variables which may account for low supervisor referral rates (Roman, 1984). That lack pointed to a need for a research study to use a conceptual framework with which to examine variables related to supervisor referral or nonreferral of subordinates to an EAP. Gilbert (1978) advanced a model to use in considering human performance. He proposed that six categories of behavior account for the quality of human performance. Industry has manipulated variables suggested by Gilbert's model in order to improve performance of employees.

It would be useful to use Gilbert's (1978) model to investigate the problem of low supervisor referrals. This study was designed to examine the effect of variables on supervisors' referral rates of subordinates to an EAP. Included in the study were variables found in previous research to be associated with supervisor referral and also variables suggested by Gilbert's

framework.

### Statement of the Problem

The purpose of this study was to determine what variables are associated with supervisors' referrals or nonreferrals of subordinates to an EAP.

Variables selected for the study included variables found in prior research to be associated with referral or nonreferral and additional variables suggested by the human performance model of Gilbert (1978). Supervisors at the Iowa Department of Transportation (IDOT) were surveyed through in-house mail to measure their responses on variables found to be associated with referral or nonreferral (see Appendix A for a copy of the survey). Supervisors were identified as referrers or nonreferrers based on the EAPs records.

Discriminant analysis was used to determine which of the measured variables were associated with referral or nonreferral. A factor analysis was performed on the predictor variables to determine which, if any, of the predictor variables were significantly inter-related.

### Hypotheses

It was hypothesized that the following variables examined in prior research would be significantly associated with supervisor membership in a referring group of supervisors:

- (a) greater social distance between supervisor and impaired employee
- (b) older age of supervisor, number of years in a supervisory role, and supervisory level
- (c) greater amount of knowledge of the EAP
- (d) supervisors' beliefs that the EAP is effective.

Although past studies may have found supervisor responses on the following variables to be associated with supervisor referral, those variables were not explored in tandem with the other variables being considered in the proposed study. Therefore, it was hypothesized that the following variables would not be found to be significantly associated with membership in a referring group of supervisors:

- (a) supervisor membership in a network
- (b) supervisor perception of support for the EAP by management, unions, and their own immediate supervisor
- (c) a positive attitude held by supervisors toward their role in referral
- (d) gender of supervisor and gender of subordinate with a job performance problem
- (e) occupational category of the majority of employees supervised by the supervisor

Finally, because the seven variables suggested by Gilbert's (1978) behavior engineering model have not been explored in past research for their influence on supervisor referral, it was hypothesized that the following list of variables, which represent ideas presented in his model, would not be associated with referral or nonreferral:

- (a) education level of supervisors
- (b) number of employees supervised
- (c) presence of intrinsic and extrinsic incentives for referring employees with job performance problems to the EAP
- (d) supervisors' perceptions of amount and type of feedback on their performance

**(e) supervisors' recall of printed sources of information about the EAP**

**(f) training received in EAP use as received by supervisors**

**(g) need for training in EAP use as expressed by supervisors**

#### **Definition of Terms**

**Referrers - IDOT supervisors who have referred at least one subordinate to the EAP. In the Review of Literature section, prior research is discussed which involved non-IDOT supervisors who have referred one or more subordinates to an EAP or an OAP. Those supervisors will be labeled as referrers.**

**Nonreferrers - IDOT supervisors who have not referred subordinates to the EAP, but who have noticed subordinates with job performance problems. Previous research on this topic, which is discussed in the Review of Literature section, did not distinguish between whether or not nonreferring supervisors had noticed subordinates with job performance problems. Consequently, in the Review of Literature section, all nonreferring supervisors will be labeled as nonreferrers but that label will not signify that those supervisors have or have not noticed subordinates with job performance problems.**

**Two groups or 2 groups - IDOT supervisors who are referrers and who are nonreferrers who have noticed a subordinate with a job performance problem. There were 164 referrers and 194 nonreferrers who had noticed a subordinate with a job performance problem.**

**Pilot study - A research study of 30 IDOT supervisors conducted prior to the study reported in this paper. The purpose of the pilot study was to test the questionnaire.**

**Study - The research study of 493 IDOT supervisors which is described in the Method, Results, and Discussion section of this paper.**



## CHAPTER II. REVIEW OF LITERATURE

### History of Employee Assistance Programs and Occupational Alcoholism Programs

The evolution of employee assistance programs (EAPs) from occupational alcoholism programs (OAPs) was traced by Archer (1977) in her history of the topic. The OAPs began in industry during the 1940s when management of large corporations became aware of the corporate financial loss due to alcoholic employees. Supervisors were trained to recognize symptoms of alcoholism in their subordinates, to use constructive confrontation with workers who demonstrated those symptoms, and to refer such workers to the OAP. The OAPs were usually housed in the company medical department and that department would assess and refer the employees for treatment. The "confrontation" aspect of constructive confrontation consisted of the supervisor pointing out the detrimental effects of the alcoholism on the employee's work performance and the supervisor stating that if the employee's performance did not improve, that he/she would be terminated. The "constructive" aspect of the constructive confrontation typically consisted of the supervisor referring the employee with the alcohol problem to the OAP for assistance with the alcohol problem. In the early OAPs the supervisor was put in the position of diagnostician. Trice and Schonbrunn (1981) have provided a detailed history of early OAPs.

In the 1960s the OAPs began to have supervisors focus on job impairment symptoms and to exclude a consideration of symptoms of alcoholism unrelated to work performance. That change was made in order to eliminate the diagnostician role of the supervisor (Von Wiegand, 1974). A further change

was made in the early 1970s when the National Institute on Alcohol Abuse and Alcoholism (NIAAA) endorsed "broad brush" occupational programming. It was named broad brush because it now encompassed assistance for any type of employee problem. Several authors have delineated the components of EAPs (George, 1983; Masi, 1982; Masi & Teeme, 1983; Ghain & Groeneveld, 1980; Wrich, 1980).

The use of supervisor constructive confrontation with subordinates who have job performance problems has been supported by many authors (Johnson, 1973; Trice & Beyer, 1982a, 1982b; Von Wiegand, 1974). Constructive confrontation is most useful with alcoholics because it helps penetrate the alcoholic's denial system. Recent trends in EAPs have emphasized wellness programming (McClellan & McClellan, 1986) and have emphasized self-referrals, while de-emphasizing supervisory referrals (Erfurt & Foote, 1985; Masi, 1984; Roman, 1981; Trice & Beyer, 1982b, 1984; Wrich, 1980). Several authors have delineated types and levels of employment with which supervisor identification of subordinates with job performance problems and subsequent referral to EAPs is difficult. Those situations occur in jobs with little supervision, much mobility, or with amorphous performance standards (Kleeman & Googins, 1983; McClellan, 1985; Roman, 1975). Examples of positions in such employment include executives, managers, faculty, physicians, flight attendants, and travelling sales persons.

### **The Problem of Low Supervisor Referral Rates**

Many researchers have documented that supervisors have a poor record of making referrals of subordinates to EAPs (Beckman & Amaro, 1984; Beyer & Trice, 1981; Cahill & Volicer, 1981; Milstead-O'Keefe & Sudduth, 1981; Reichman, Levy, Young, & Herrington, 1982; Riediger, 1985; Schuft, 1983; Shain, 1985). Two terms have been used interchangeably in the literature: "low referral rate" and "poor referral rate." The terms "poor referral rate" and "low referral rate" have been conceptualized as a supervisor not referring any of his/her subordinates who are experiencing job performance problems. Writers in the EAP field, as cited by Masi (1984), have documented that from 15% to 20% of the work force at any one time are experiencing poor job performance due to problems such as mental illness, alcoholism, and financial difficulties. Because of the existence of low referral rates, several researchers have examined factors which affect supervisor referral rates. In the present paper's review of research pertaining to low supervisor referral rates, 10 variables which may affect those rates will be considered:

- (a) age and age-related variables of supervisors
- (b) beliefs of supervisors regarding the effectiveness of EAPs/OAPs
- (c) degree of support of the EAP/OAP by management, relevant unions, and their own immediate supervisor as perceived by supervisors
- (d) gender of supervisor and gender of subordinate with a job performance problem
- (e) the existence of a supervisor network
- (f) occupational category of the majority of employees supervised by the supervisor

- (g) social distance between supervisor and employee with a job performance problem
- (h) supervisors' attitudes toward their role in referral
- (i) supervisor ideologies
- (k) supervisor knowledge of the OAP/EAP.

The following section is a literature review of research on each of the 10 variables. An integrated conceptual framework has not been advanced by those in the field to account for low supervisor referral rates. As Roman (1984) stated, "EAP research has not been monopolized by a single discipline . . . which means that there is little in common in terms of theoretical guidance or methodological design" (p. 2).

#### **Variables Related to Low Supervisor Referral Rates**

##### **Age and Age-Related Variables of Supervisors**

The data regarding age and age-related variables of supervisors are conflicting, perhaps because studies involving different organizational settings may introduce the confounding variable of different degrees of management support for the EAP. Specifically, two studies (Beyer & Trice, 1978; Googins & Kurtz, 1981) found older age of supervisor was related to higher referral rates, while two studies (Reisman & Schrader, 1984; Young, Reichman, & Levy, 1987) found that age was not related to higher referral rates. In terms of length of employment with the organization, Googins and Kurtz (1981) found nonreferrers were employed with their organization less time; however Beyer and Trice (1978) did not find that relationship. Length of time as a supervisor was not related to identification or referral of employees with job performance problems (Young et al., 1987), while two studies (Beyer

& Trice, 1978; Googins & Kurtz, 1981) found that supervisors newer to their present position referred fewer employees.

#### Beliefs of Supervisors Regarding the Effectiveness of EAPs/QAPs

Young et al. (1987) were able to discriminate between referrers and nonreferrers to an EAP using a scale measuring supervisor belief of the EAP effectiveness. Supervisors were given but three choices: effective, ineffective, or no opinion. No reliability was reported for their scale.

Beyer and Trice (1984) used one scale to measure the extent of supervisors' positive expectations regarding their use of an QAP and another scale to measure the extent of supervisors' negative expectations regarding their use of the QAP. A specific description of the scale was not given. Dependent variables did not include referral/nonreferral to the QAP, but instead included the use of constructive and confrontive topics in supervisors' discussions with impaired subordinates. The term "constructive topics" was used to describe discussion topics which included sources for help for the impaired subordinate and the subordinate's own explanation for his/her job performance problem. Confrontive discussion topics included a description by the supervisor of (a) the subordinate's job performance problem, (b) possible disciplinary steps for the subordinate if job performance did not improve, and (c) the impact of poor job performance ratings on the subordinate's work record.

Beyer and Trice (1984) found that supervisors' positive expectations about the results of using the QAP were associated with their less use of constructive topics and were not associated with their use of confrontive topics. Supervisors' negative expectations regarding their use of the QAP were

not associated with the use of constructive or confrontive topics in discussions with subordinates experiencing job performance problems.

Beyer and Trice (1978) found that supervisors' responses to a perceived benefit of OAP scale (reliability = .82) were not associated with past referrals or expected future referrals to the OAP. Supervisors' responses to a scale measuring perceived need for the OAP (reliability = .49) were not associated with past referrals, but were associated with supervisors' expressed intentions to make referrals to the EAP in the future.

Googins and Kurtz (1981) reported that supervisors' responses to a 6-item scale measuring their attitude toward the effectiveness of their company's OAP were not associated with referral. However, positive attitudes of supervisors toward the utility of the OAP, as measured by a 3-item scale (reliability = .78), were associated with referral.

In summary, there are conflicting results as to whether supervisors' beliefs in the effectiveness of the OAP/EAP are associated with referral. Those differences may be because the various studies reviewed encompassed both EAPs and OAPs. Further, there may be a particular climate within a work organization which interacts with supervisors' belief in the EAP's effectiveness.

#### Degree of Support of the EAP/OAP by Management, Relevant Unions, and Their Own Immediate Supervisor as Perceived by Supervisors

Little study has been made of the effect on referral rates of the degree of support of the EAP/OAP by management, unions, and their own immediate supervisor as perceived by supervisors. What has been published (Beyer, Trice, & Hunt as cited by Trice & Beyer, 1982b; Foote, Erfurt, & Austin as cited by

Archambault, Doran, Matlas, Nadolski, & Sutton-Wright, 1982) points in the direction that a supervisor may be more inclined to make referrals to the OAP/EAP if she/he perceives management and or union support for that action.

However, Beyer and Trice (1984) reported that supervisors' perceptions that the union was influential in their work organization were associated with less use by supervisors of temporary suspension of subordinates with job performance problems, fewer days of suspension, and less use of confrontive topics with subordinates experiencing job performance problems. It is difficult to interpret the Beyer and Trice (1984) study because they did not report the views of the union toward the OAP, disciplinary measures, or confrontive topics. However, from the context, it may be hypothesized that the union involved with the organization studied in the research was not supportive of the OAP and discipline of impaired employees. Beyer and Trice (1984) did not describe the scale they used to measure supervisors' perception of union influence.

#### Gender of Supervisor and Gender of Employee with a Job Performance Problem

There has been some hypothesizing in the literature as to why supervisor referral rates of female alcoholic employees are lower than those of male alcoholic employees (Cahill, 1983; Cahill, Volicer, Neuburger, & Arntz, 1982; Cook, Schuft, & Meyers, 1982; "Perspectives," 1980; Reichman et al., 1982), but there have been scant empirical tests of those proposed hypotheses. Reichman et al. (1982) and Young et al. (1987) found some evidence that supervisor attitudes toward women and drinking may play a small role in the lower referral rates for women alcoholics. No research was found which

examined the effect of supervisor gender on referral rates of employees with all types of problems to EAPs.

#### Network Membership

Only one researcher has examined the effect of supervisor membership in an informal network on referral rates (Googins & Kurtz, 1981). The network variable was measured by items which indicated that referrers more often than nonreferrers

- (a) knew of employees other than their own who had used the OAP
- (b) knew of supervisors other than themselves who had used the OAP
- (c) went to another supervisor for assistance and advice concerning a problem drinking employee
- (d) talked with supervisors at levels above and below themselves regarding alcoholic employees.

No validity was provided for the network scale, but it was found that the scale discriminated between referring and nonreferring supervisors (Googins and Kurtz, 1981). The authors suggested that supervisor membership in an informal network of supervisors contributed to referrals by providing an organizational structure and climate supportive of referral.

#### Occupational Category of the Majority of Employees Supervised by the Supervisor

Some descriptive studies have reported that blue collar workers and those with close supervision are more frequently referred to EAPs/OAPs than white collar employees when differences in number of employees in each of the two occupational levels were controlled (Kleeman & Googins, 1983; Martin, Heckel,



Goodrick, Schreiber, & Young, 1985/1986; Thoreson, Hosokawa, & Talcott, 1982; Trice & Beyer, 1977).

**Social Distance Between Supervisor and Employee with a Job Performance Problem**

Trice and Beyer (1982a) hypothesized that emotional closeness and similarities between supervisor and subordinate impedes the use of constructive confrontation. The authors cited various empirical research studies which have found that a certain amount of social distance between supervisor and subordinate is necessary for constructive confrontation to take place. Research by Trice and Belasco (1968) showed that a certain amount of social distance, as measured by a change to a more negative attitude toward the impaired employee, was needed between supervisor and subordinate with a job performance problem before the supervisor would use constructive confrontation with the employee.

Similarly, Googins (1979) found that 54.1% of supervisors who had not referred any employees to a company DAP rated themselves as having a more personal relationship with their employees than they believed other supervisors to have. In comparison, it was found that 23.8% of referrers rated themselves as having a more personal relationship with their employees than they believed other supervisors to have.

Concurring with the results of Googins (1979) and Trice and Belasco (1968), Trice and Roman (1972) cited an earlier study by Trice who found that little social distance between supervisors and both their alcoholic and psychotic employees discouraged them from referring their subordinates to the company's EAP.

The EAP/OAP literature reviewed on the topic of social distance between supervisor and subordinate did not use the Bogardus social distance scale as cited in Bogardus (1958). The Bogardus scale is widely used in sociology research (Benton, 1960; Bogardus, 1958; Crull & Bruton, 1985; Laumann, 1965; Westie, 1959). The Bogardus scale, as cited in Bogardus (1958) is most often used to assess the degree of acceptance by white U.S. citizens of various nonmajority groups such as persons of minority racial background, homosexual orientation, or international origin. The items used to assess acceptance/nonacceptance include:

- (a) would marry into group
- (b) would have as close friends
- (c) would have as next door neighbors
- (d) would work in same office
- (e) have as speaking acquaintances only
- (f) have as visitors only to my nation
- (g) would debar from my nation

Westie (1959) discussed the Bogardus scale, as cited in Bogardus (1958) as not being useful in discrimination between two "non-out" groups. Supervisors and their subordinates may not, by virtue of their classification as either a supervisor or a subordinate, automatically be conceptualized as being a member of an "out" group, at least in the sense that Westie (1959) used the term. Westie (1959) conceptualized the social distance between an "in" and an "out" group as much greater than that which might exist between supervisors and their subordinates in the same work organization. Therefore, Westie's (1959) comments would seem applicable to the present study in

terms of providing justification for not using the Bogardus scale. Benton (1960) also addressed the same issue as Westie (1959) as reflected in the statement, "Further experimentation is called for . . . in the specification of relationships more closely spaced than Bogardus' seven . . ." (p. 181). The discussions by both Benton (1960) and Westie (1959) would seem to support the decision not to use the Bogardus scale in the present study.

It was determined that the categories of the Bogardus scale, as cited in Bogardus (1958), were not applicable to the present study because it was not possible for supervisors to put as much social distance between themselves and subordinates as items (e) through (g) in the scale suggested. Further, item (d) in the scale was a fact about which supervisors had little choice, other than to terminate the subordinate, and item (a) in the scale would seem inappropriate in some cases and might consequently provoke a strong negative reaction in some supervisors. Consequently, a decision was made not to use the Bogardus scale, as cited in Bogardus (1958), in the present study.

In summary, several researchers (Googins, 1979; Trice & Belasco, 1968; and Trice & Roman, 1972) have found evidence that not enough social distance between supervisor and subordinate impedes supervisor referral.

#### Supervisors' Attitudes Toward Their Role in Referral

Several authors have hypothesized, but not empirically tested, supervisors' attitudes toward EAPs/OAPs and the supervisors' role in its use (Blair, 1983; Dixon, 1985; Foster, 1982; Phillips & Older, 1977; Terry & Carmody-Sheehan, 1983). Various other authors have tested hypotheses empirically (Beyer & Trice, 1978, 1984; Googins & Kurtz, 1981; Young et al.,

1987). It appears that the following supervisor attitudes are related to increased referrals:

- (a) the EAP/OAP policy is applicable to particular employees
- (b) a positive attitude toward change in general
- (c) the OAP/EAP helps the supervisor do his/her job.

The following items, from a scale used by Googins and Kurtz (1981), are those held significantly more by nonreferrers:

- (a) I feel a referral could jeopardize [an] employee's career
- (b) The paper work involved is a discouraging factor
- (c) It is difficult to confront an [problem] employee
- (d) I'm not sure when to refer
- (e) It is a real hassle to use the program
- (f) I need more training to identify problem employees (p. 207)

One variable which was examined was supervisors' beliefs that they could handle on their own a subordinate's problems. There are conflicting results as to whether that variable is associated with referral or nonreferral (Beyer & Trice, 1978; Googins & Kurtz, 1981; Trice as cited by Trice and Roman, 1972). Also, there have been nondata based reports about supervisors' negative attitudes toward constructive confrontation (Kurtz, Googins, & Williams, 1980; Riediger, 1985).

#### Supervisor Ideologies

There is little evidence that supervisor ideologies, e.g., humane pragmatism, social responsibility, Protestant ethic, laissez faire ideology, and social determinism, impact on referral rates (Beyer & Trice, 1984).

### **Supervisor Knowledge of the EAP/DAP**

Several researchers have demonstrated that supervisor knowledge of the EAP/DAP and its policies are related to increased referrals (Beyer & Trice, 1978; Googins & Kurtz, 1981; Heyman, 1976; Young et al., 1987). There was an indication in two studies that supervisors want more training in constructive confrontation (Kurtz et al., 1980; Washousky & Kruger, 1984). Results of research illustrated the superiority of skills practice over presentation of information alone (Cahill et al., 1982; Fisher, Fisher, & Mason, 1976; Googins & Kurtz, 1980; Latham, Wexley, & Pursell, 1975; Toro, 1983).

### **Summary of Variables Related to Low Supervisor Referrals**

In summary, in the Review of Literature section, a discussion was presented of 10 variables and their relationship to supervisor referral rates of subordinates to EAPs/DAPs. Research results indicate that there are nine variables which have been found to be related to supervisors' referral rates of subordinates with job performance problems to EAPs/DAPs. Those variables are:

- (a) age and age-related variables of supervisors
- (b) beliefs of supervisors regarding the effectiveness of EAPs/DAPs
- (c) degree of support of the EAP/DAP by management, unions, and their own immediate supervisor as perceived by supervisors
- (d) gender of supervisor and gender of employee with a job performance problem
- (e) network membership
- (f) occupational category of the majority of employees supervised by the supervisor

(g) social distance between supervisor and employee with a job performance problem

(h) supervisors' attitudes toward their role in referral

(i) supervisor knowledge of the EAP/OAP.

It was found that supervisor ideologies did not impact on their referral rates to EAPs/OAPs of subordinates with job performance problems.

#### A Framework for Conceptualizing Low Referral Rates

Gilbert (1978, 1982a, 1982b) developed a behavior engineering model to be used to improve human performance on the job. His model can be applied to the problem of low supervisor referrals of subordinates with job performance problems to EAPs/OAPs. As previously discussed, writers and researchers in the EAP field have not used any one conceptual framework to account for the low referral rates and most authors have addressed conceptual frameworks only peripherally.

Gilbert's model provides a needed framework for considering the problem of low referral rates. It would be useful to briefly describe his behavior engineering model (Gilbert, 1978) and PROBE model (Gilbert, 1982a, 1982b). Gilbert (1978) proposed that a person's performance is a function of both how the environment impacts on the person and a function of variables intrinsic to the person. Three environmental categories impact on the person who is labeled as the performer:

(a) data, information on what the performer is supposed to do (direction) and of feedback on the performer's behavior

(b) instruments, tools used to accomplish the tasks

delineated in the data

- (c) incentives, extrinsic rewards for the performer for exemplary performance.

Three categories intrinsic to the person which influence his/her performance are:

- (a) knowledge, including comprehension by the performer of the context and reason for the performance
- (b) capacity, the physical, emotional, and perceptual ability of the performer
- (c) internal motivation for exemplary performance.

Gilbert (1982a) stated that in the rush to improve performance, managers too often assume, without further investigation, that the problem is due to lack of employee motivation (e.g., not caring about doing well) or lack of capacity (e.g., low intelligence). When considering the previous review of the literature pertaining to low supervisor referral rates, it is apparent that companies with poor referral rates could benefit from a more systematic analysis of the situation using Gilbert's (1978, 1982a) model.

#### Application of Gilbert's Framework to Variables Related to Low Supervisor Referral Rates

In the literature review section, nine variables were found to be related to poor supervisor referral rates of subordinates with job performance problems. The author classified those nine variables into Gilbert's (1978) six categories of behavior which he hypothesized impact on performance. It was determined by the author to place those nine variables in Gilbert's (1978)

categories as follows (Gilbert's categories are listed in the parentheses following each variable):

- (a) age and age-related variables of supervisors (age is related to all six of Gilbert's categories)
- (b) beliefs of supervisors regarding the effectiveness of EAPs/OAPs (incentives)
- (c) degree of support of the EAP/OAP by management, relevant unions, and their own immediate supervisor as perceived by supervisors (incentives)
- (d) gender of supervisor and gender of employee with a job performance problem (knowledge, in the sense that not enough knowledge may lead supervisors to hold stereotypes about the interaction of gender and the cause of job performance problems)
- (e) occupational category of the majority of employees supervised by the supervisor (data, in that performance standards of referral may not be as applicable with certain occupational categories)
- (f) the existence of a supervisor network (data, instruments, and incentives)
- (g) social distance between supervisor and employee with a job performance problem (internal motivation)
- (h) supervisors' attitudes toward their role in referral (capacity and instruments)
- (i) supervisor knowledge of the OAP/EAP (knowledge)

In addition, Gilbert's human performance model suggests that it would be useful for EAP researchers to consider the following seven variables in relation



to supervisors' referral rates of subordinates to EAPs (Gilbert's categories are listed in the parentheses following each variable):

- (a) education level of supervisors (capacity)
- (b) number of employees supervised (knowledge, due to possible increased exposure to a greater number of subordinates with job performance problems)
- (c) presence of intrinsic and extrinsic incentives for referring employees with job performance problems to the EAP (incentives and internal motivation)
- (d) supervisors' perceptions of amount and type of feedback on their performance (data, in the form of feedback on performance)
- (e) supervisors' recall of printed sources of information about the EAP (data)
- (f) training received in EAP use as received by supervisors (knowledge)
- (g) need for training in EAP use as expressed by supervisors (knowledge)

Thus, in terms of examining the problem of low supervisor referrals, Gilbert's (1978) framework for human performance suggests a more complete look at the problem than that provided by the existing EAP literature.

### CHAPTER III. PROPOSED STUDY AND HYPOTHESES

From the review of the literature, it was apparent that there would be utility in studying the variables reviewed and those seven additional variables suggested by Gilbert's model in order to determine which variables may be associated with supervisor membership in nonreferring or referring groups. It was hypothesized that the following variables examined in prior research would be significantly associated with supervisor membership in a referring or group of supervisors:

- (a) more social distance between supervisor and impaired employee
- (b) older age of supervisor, number of years in a supervisory role, and supervisory level
- (c) greater amount of knowledge of the EAP
- (d) supervisors' beliefs that the EAP is effective

Although past studies may have found supervisor responses on the following variables to be associated with supervisor referral or nonreferral, in prior studies those variables were not explored in tandem with the other variables being considered in the proposed study. Therefore, it was hypothesized that the following variables would not be found to be significantly associated with membership in referring or nonreferring groups of supervisors:

- (a) supervisor membership in a network
- (b) supervisor perception of support for the EAP by management, unions, and their own immediate supervisor
- (c) a positive attitude held by supervisors toward their role in referral
- (d) gender of supervisor and gender of subordinate with a job

performance problem

- (e) occupational category of the majority of employees supervised by the supervisor.

Finally, because the seven variables suggested by Gilbert's (1978) behavior engineering model have not been explored in past research for their influence on supervisor referral, it was hypothesized that the following list of variables, which represent ideas presented in his model, would not be associated with supervisor referral or nonreferral:

- (a) education level of supervisors
- (b) number of employees supervised
- (c) presence of intrinsic and extrinsic incentives for referring employees with job performance problems to the EAP
- (d) supervisors' perceptions of amount and type of feedback on their performance
- (e) supervisors' recall of printed sources of information about the EAP
- (f) training received in EAP use as received by supervisors
- (g) need for training in EAP use as expressed by supervisors.

In summary, the present study was planned to examine the following 16 variables in terms of their value in classifying supervisors as referrers or nonreferrers. The remarks in parentheses after each variable name is the category name in Gilbert's framework in which each variable was placed):

- (a) age-related variables of supervisors (age is related to all six of Gilbert's categories)

- (b) beliefs of supervisors regarding the effectiveness of EAPs/OAPs (incentives)**
- (c) degree of support of the EAP/OAP by management, relevant unions, and their own immediate supervisor as perceived by supervisors (incentives)**
- (d) education level of supervisors (capacity)**
- (e) gender of supervisor and gender of subordinate with a job performance problem**
- (f) the existence of a supervisor network (data, instruments, and incentives)**
- (g) number of employees supervised (knowledge due to possible increased exposure to a greater number of subordinates with job performance problems)**
- (h) occupational category of the majority of employees (data in that performance standards of referral may not be as applicable with certain occupational categories)**
- (i) presence of intrinsic and extrinsic incentives for referring employees with job performance problems to the EAP (incentives and internal motivation)**
- (j) social distance between supervisor and employee with a job performance problem (internal motivation)**
- (k) supervisors' attitudes toward their role in referral (capacity and instruments)**
- (l) supervisor knowledge of the OAP/EAP (knowledge)**

- (m) supervisors' perceptions of amount and type of feedback on their performance (data in the form of feedback on performance)**
- (n) supervisors' recall of printed sources of information about the EAP (data)**
- (o) training received in EAP use (knowledge)**
- (p) need for training as perceived by supervisors (knowledge)**

## CHAPTER IV. METHOD

### Subjects and Setting

The subject pool consisted of 523 Iowa Department of Transportation (IDOT) supervisors. There were nine supervisors who were not included in the study because the IDOT Director of Human Resources stated those people were in very top level management and he did not want to include them in the research. There was attrition of 8 supervisors in the subject pool because of resignation, retirements, and other reasons. Consequently, there were 515 supervisors who could be expected to respond to the survey. In the remainder of the Method section, the initial subject pool will be referred to as consisting of 523 supervisors. For details on the attrition in subject number see the section entitled, "Attrition of supervisors," in the Results section and Appendix B. The 523 supervisors included supervisors from three levels: first line supervisors, middle managers (office directors and resident engineers), and upper managers (district engineers and bureau or division directors). About 10% of the supervisors were female. Less than 10% of the total supervisory and nonsupervisory workforce in the IDOT is female.

Dillman (1978) recommended that a pilot study be conducted so that survey items could be tested to determine if supervisors were able to understand and answer them as directed. Of the 523 supervisors in the subject pool, 30 were selected to be in the pilot study of the survey. The 30 supervisors in the pilot study were not included in the actual study which consisted of the remaining 493 supervisors. For details concerning the pilot study see Appendix C.

Of the 493 supervisors in the study, 136 were referrers according to a list of subject identification numbers provided by the EAP Coordinator. However, after surveys were returned, it was discovered that there had been an error in the provided list of referrers and that there were actually 171 referrers and 322 nonreferrers in the subject pool. For specific details regarding the error in number of referrers, see Appendix D.

Googins (1979) discussed the need to control for possible opportunities of the nonreferring supervisor to refer. That was accomplished in this study by including an item in the survey which asked nonreferring supervisors to indicate whether or not they had noticed at least one employee with a job performance problem among the employees they had supervised in the past. That question yielded three groups of supervisors: referring supervisors, nonreferring supervisors who had noticed at least one employee with a job performance problem, and nonreferring supervisors who had never noticed an employee with a job performance problem.

It was not necessary to match referring supervisors and nonreferring supervisors on demographics such as age, years with the DOT, years in a supervisory role, etc. That was because demographic variables were considered as possible predictor variables and were used in the data analyses to determine which variables accurately classified supervisors into referring and nonreferring groups.

#### History of the EAP at the Iowa Department of Transportation (IDOT)

##### Overview

Because subjects were supervisors with the IDOT it is helpful to briefly discuss the history of the EAP at the IDOT. Information in the present section

on the history of the EAP was obtained from Racquel Miller, the EAP Coordinator for the State's EAP and a former EAP counselor with the IDOT's EAP (R. Miller, personal communication, October 20, 1987, and April 15, 1988). Additional information concerning the IDOT's EAP was obtained from Montross (1985). In May 1979, the EAP was established at the IDOT based on the recommendations of an intern in the Human Resources Bureau with the IDOT. Before the EAP was started, the IDOT had made efforts to get alcoholic employees to treatment in community agencies. The EAP began with one full time staff person and from 1981 until April 1986 the IDOT had two members on the EAP staff. After the State of Iowa reorganized its government agencies, the IDOT's EAP was moved in April 1986 to Des Moines and the program was expanded to serve all state employees, not just those of the IDOT. From April 1986 until December 1987, the EAP was in a period of transition. However, during that time period, IDOT employees had access to the EAPs' services. The State EAP coordinator, Racquel Miller, who has served in that capacity from April 1986 to the present, also had been one of the two EAP staff members with the IDOT's EAP and had been employed in that position since 1984. Consequently, she was able to provide continuity between the IDOT's EAP and the expansion of the EAP to serve all departments in the state. The state legislature did not make a firm commitment to support and fund the program until December 1987. In January 1988 an outside contractor, the Employee Assistance Program of Des Moines, was hired to provide the assessment and referral functions of the EAP. The EAP Coordinator, Racquel Miller, has stayed on and is now serving as liaison between the state and the EAP contractor.



### History of the IDOT's EAP from 1979 through March 1986

During the time period from 1979 until April 1986, two different handbooks were used to acquaint staff with the EAP; supervisors received one handbook and nonsupervisory employees received another handbook. New employees were given an orientation to the EAP and every two years supervisors received updated training concerning the EAP. In addition, information about the EAP was included with paychecks, posters on bulletin boards, and IDOT newsletters.

The following comments on the EAP apply to it throughout all its stages and represent policies from 1979 through June 1988. The EAP is not connected with a formal discipline process because it is not included in the collective bargaining agreement between the union AFSCME and the bargaining units within the IDOT. Prior to, or at any point in the discipline process, supervisors may choose to refer a subordinate to the EAP. IDOT employees are not required to follow through if they are referred to the EAP, but the EAP is presented as one possible solution to a job performance problem. Self-referrals or referrals by persons other than the supervisor are also methods of entry as a client into the EAP. Any contact an employee had with the EAP was, and still is, considered confidential.

Historically, the IDOT's EAP dealt with issues of job-related disabilities in addition to more typical situations handled by EAPs. The EAP staff also assisted if the death of an employee occurred. The two services regarding employee death and job-related disability were not provided after the EAP was reorganized in April 1986. Also, on-site visits to all IDOT work locations in the State were not provided after April 1986. However, prior to

and throughout the reorganization period, employees could be seen at the EAP for problems including chemical dependency, mental illness, family/relationship concerns, legal/financial difficulties, and general job performance issues.

#### History of the EAP from April 1986 through December 1987

The State reorganized its agencies in 1986 and one result was that the IDOT's EAP was moved in April 1986 to Des Moines and expanded to serve all state employees. One of the IDOT's EAP counselors, Racquel Miller, was named as Coordinator for the state's EAP and has remained in that position through the present. As a results of the reorganization, one of the services which was not available after April 1986 was on-site visits by the EAP counselor to all IDOT work locations in the state.

#### History of the EAP from January 1988 through June 1988

After the data for the present study were collected, the EAP Coordinator informed the author of the present paper that the State formally approved the reorganized EAP in January 1988. An outside contractor, the Employee Assistance Program of Des Moines, was hired to provide assessment and referral functions of the EAP in addition to supervisor training in use of the EAP. Preparation for supervsior training in EAP use was begun in January 1988. During February, March, and April 1988, many of the supervisors in the present study received training. The training occurred prior to and during the time of data collection for the present study. The implication of the training and its possible influence on supervisors' responses to the survey are discussed in the Results subsection entitled, "EAP Training for IDOT supervisors prior to and during the data collection period."

On January 12, 1988, a letter was sent to all Ames and Des Moines IDOT supervisors which announced the expansion of the IDOT's EAP to include all state employees. In addition, the letter informed supervisors of how to register for EAP training scheduled for February. Records indicated that 120 IDOT supervisors in the Ames and Des Moines area attended the February training sessions.

On January 29, all IDOT employees received with their paychecks an announcement which discussed the new EAP services. On March 2, 1988, all IDOT supervisors not working in the Des Moines and Ames area received a letter announcing the expansion of the IDOT's EAP to serve all state employees. The letter provided information about how to enroll for a March or April training session about the new EAP. Attendance at the March and April training sessions in the field, i.e., outside the Des Moines/Ames area, consisted of 178 IDOT supervisors and additional supervisors from other state departments and agencies. At both the Des Moines/Ames and the field training sessions, supervisors received a copy of the EAP policy, watched a film involving a supervisor's informal referral of a subordinate to an EAP, and participated in a general discussion of the EAP purpose and policies of the EAP.

#### Instruments

Supervisor responses to survey questions which measured 15 variables were used to classify supervisor membership in referring or nonreferring groups. The number of variables was 15 instead of 16 because the variable of supervisor gender was dropped from the study because in the IDOT, 89% of the supervisors were male, and also because the proportion of males and females among referrers and nonreferrers in the study was found to be virtually

identical. Only responses of referrers and nonreferrers who had noticed a subordinate with a job performance problem were used due to the importance of controlling for opportunity of the supervisor to refer.

Of the 15 variables in the study, 5 variables were measured using scales which already existed in the literature and which were slightly modified for use in the present study. Modification of an already existing scale would change the reliability of the scale and that reliability values reported for the original scale may not apply to the modified version of the scale.

The literature review yielded no measurement instruments for 10 of the 15 variables so instruments were developed for use in the present study. The variables for which items were developed for this study included:

- (a) degree of support of the EAP by management, relevant unions, and their own immediate supervisor as perceived by supervisors
- (b) education level of supervisor
- (c) number of employees supervised
- (d) occupational level of the majority of employees supervised by the supervisor
- (e) presence of intrinsic and extrinsic incentives for referring employees with job performance problems to the EAP
- (f) social distance between supervisor and employee with a job performance problem
- (g) supervisor perception of amount and type of feedback on their performance
- (h) supervisors' recall of printed sources of information about the EAP

(i) training received in EAP use

(j) need for training in EAP use as expressed by supervisors

An expert judge gave her opinion that all survey items had adequate face validity. Due to constraints involved in using supervisors from the IDOT, it was not possible to conduct reliability tests or further validity tests of the survey items prior to the study. The 15 variables and the items which were used to measure them will now be discussed.

#### Age and Age-related Variables of Supervisors

Supervisors were asked to indicate their age, supervisor level, number of years in present position, number of years in a supervisory role at the IDOT, number of years with the IDOT, and number of years in a supervisory role with any organization. Googins (1979) had used similar items to measure age and age-related variables. Age and age-related variables were measured by questions 22, 23, 25, 26, 27, and 28, respectively (see Appendix A).

#### Beliefs of Supervisors Regarding Effectiveness of the EAP

Young et al. (1987) were able to discriminate between referrers and nonreferrers using a scale measuring supervisor belief of the EAP effectiveness. Supervisors had but three choices: effective, ineffective, or no opinion. No reliability was reported for the scale. For this research the possible responses were extended to a 5-point scale and measured by question 1.

#### Degree of Support of the EAP by Management, Relevant Unions, and Their Own Immediate Supervisor as Perceived by the Supervisor

Supervisors were asked to indicate on 5-point scales the degree to which they perceived support of the EAP by management, union, and their own

immediate supervisor. A sixth response of "Don't Know" was also included. The reason that this scale had 6 response choices was that a 5-point scale was used in the pilot study, but almost half of the pilot supervisors wrote on their surveys that they didn't know the extent that management, the union and their supervisor were supportive of the EAP. Consequently, a sixth response choice, "Don't Know," was added to the survey. The literature review concerning this variable did not include any quantitative measurement scales of supervisor perception of degree of union, management, or immediate supervisor support of the EAP. Questions 16a, 16b, and 16c were measures of those variables

#### Education Level of Supervisor

Highest level of education completed by each supervisor was measured by question 32 .

#### Network Membership

Only one study had addressed network membership as it pertains to poor supervisor referral rates (Googins & Kurtz, 1981). They developed a 5-item scale with a reliability of  $\alpha = .65$ . That scale successfully discriminated between nonreferring and referring supervisors. Permission was obtained from Googins to use their scale in the present study. Their scale was modified for the present study by deleting two items which were not appropriate for this study. Questions 18a-18c measured network membership.

#### Number of Employees Supervised

The number of male employees supervised was measured by question 29 and the number of female employees supervised was measured by question 30.

### Occupational Category of the Majority of Employees Supervised by the Supervisor

The occupational category of the majority of employees supervised by each supervisor was measured by question 24.

### Presence of Intrinsic and Extrinsic Incentives for Referring Employees with Job Performance Problems to the EAP

Gilbert (1978, 1982a) discussed this variable, but did not supply any measurement instruments of it. A measure with face validity was developed for this study based on his work (see questions 17a-17d).

### Social Distance between Supervisor and Employee with a Job Performance Problem

Two items discussed in the EAP/OAP literature as possible ways to operationalize social distance included the extent to which the supervisor socialized with the subordinate outside the work setting (Trice & Beyer, 1982a) and whether the supervisor ever worked as a peer with the subordinate (Trice & Belasco, 1968). Those situations were used to construct a social distance measure with face validity. Questions 9-11 were used as measures of social distance between nonreferring supervisors and the subordinate most recently noticed to have a job performance problem. Questions 13-15 were used as measures of social distance between referring supervisors and the subordinate most recently referred to the EAP.

### Supervisors' Attitudes toward Their Role in Referral

Googins and Kurtz (1981) found that their supervisor role responsibility scale discriminated between referring and nonreferring supervisors. The scale has a reliability of  $\alpha = .73$ . Permission was obtained from Googins to

utilize the scale in the present study. Their scale was modified for the present study by deleting five items which did not apply or which were considered too vague and not a valid measure for this study. Questions 19a-19d were used to measure supervisors' attitudes toward their role in referral.

#### Supervisor Knowledge of the EAP

Beyer and Trice (1978) found that a scale they developed to measure supervisors' familiarity with a company's alcoholism policy discriminated between referring and nonreferring supervisors. The scale has a reliability of  $\alpha = .93$ . Permission was obtained from Beyer to use the scale in the present study. Their scale was revised for the present study to measure familiarity with an EAP policy rather than familiarity with an alcoholism policy (see questions 2a-2f).

#### Supervisors' Perceptions of Amount and Type of Feedback on their Performance

In a discussion of his model, Gilbert (1978, 1982a) stated that quality feedback of worker performance is a component of exemplary performance. No measures of this variable were given by Gilbert (1978, 1982a). A measure with face validity was developed for this study (see questions 20a-20b).

#### Supervisors' Recall of Printed Sources of Information about the EAP

Supervisors' recall of printed sources of information about the EAP was measured by questions 3a-3d.

#### Training Received in EAP Use

Training received in EAP use was measured by question 4 in the survey.

#### Need for Training in EAP Use as Expressed by Supervisors

Need for training in EAP use as expressed by supervisors was measured by questions 5a-5c in the survey.



### **Distinction between Terms "Variable" and "Predictor Variable"**

**Due to the fact that some of the 15 variables were measured by more than one question or item in a question, there were a total of 64 variables. Also, due to the exploratory nature of the study, items in each scale were treated as separate predictor variables. In other words, scale items were not summed to yield one score for each supervisor on each scale. Consequently, it is important to clarify that in the data analyses discussed in the "Results" section that there were responses to more than 15 survey questions used in the analyses. The "Results" section makes reference to a certain number of predictor variables, but those predictor variables are distinct in terminology from the 15 variables just discussed. The predictor variables are actually the survey questions themselves. In other words there may be more than one predictor variable which is used to measure one of the 15 variables just discussed. In order to prevent confusion, predictor variables will always be modified by the word "predictor" whereas the 15 variables discussed in the "Review of Literature" will not be modified with the word "predictor."**

### **. Survey Questions not Included in the Data Analyses**

**A few questions were included in the survey which were not included in the data analyses. Question 6 was used to direct referrers to skip questions 7-11 and answer questions 12-15. Question 7 was used so that nonreferrers who had not noticed a subordinate with a job performance problem could be excluded from data analyses. Questions 8 and 12 were used as memory prompts to assist supervisors in thinking of the most recent subordinate with a job performance problem so that supervisors' responses would be more accurate to questions 7-11 and questions 13-15, which followed questions 8**

and 12, respectively. Questions 10 and 14 were used to direct supervisors to skip questions 11 and 15 if they had chosen response #1 to question 10 or question 14. Question 21 on gender was used so that if return rates of the survey were less than optimal, it could be determined if the return rates were equal across gender. In summary, the following questions were not included in the data analyses: questions 6, 7, 8, 10, 12, 14, and 21.

#### Procedure

Written permission for this study was obtained from management of the IDOT. Approval for the use of human subjects in this research project was obtained from the Iowa State University Committee on Use of Human Subjects in Research.

The list of supervisors in the study consisted of computerized mailing labels which the IDOT generated from its personnel files. From a system the IDOT already had in place prior to the present study, a computerized print-out of mailing labels for all IDOT supervisors was generated. An IDOT personnel staff member, Mary Christy, was assigned to work with the present researcher in providing needed assistance. She provided the mailing labels with identification numbers written in ink next to each name. The identification numbers were recorded in consecutive order from beginning to end of the list and were created for use in conducting follow-up mailings. A photo-copy was made of the labels and prior to using the labels for mailing, the identification number was removed.

Using her records, which existed only for the last three years of EAP clients, and the computerized mailing list with identification numbers, the EAP Coordinator composed a list of identification numbers of IDOT supervisors

who had referred a subordinate to the EAP within the last three years. In order to preserve confidentiality of status as a referrer, identification numbers were used to prepare a list of referrers and the list was not given to the author of the present study until after data collection was completed. As previously mentioned in the Method section, the provided list of referrer identification numbers was in error. For details on that matter see Appendix D.

A packet distributed to supervisors through in-house company mail, contained the following: a survey entitled "Supervisors' Views of the Employee Assistance Program," a letter from the EAP Coordinator, and a cover letter (see Appendices A, E, and F, respectively). The survey was mailed to 493 supervisors on February 29, 1988. The cover letter enclosed with the survey provided detailed information about the usefulness of the study to the organization and the supervisors, the importance of the individual responding, and assurances of confidentiality. The necessity of an identification number on the front cover of the survey was also explained in the cover letter. One week after the original questionnaire was mailed, a postcard reminder was sent to all supervisors to thank those who had responded and to remind those who had not yet replied to do so (see Appendix G). A second copy of the questionnaire and a new cover letter were sent to nonresponders on March 21, 1988, 3 weeks after the first mailing (see Appendix I). Nonresponders were again contacted on April 18, 1988, 7 weeks after the initial mailing and a third cover letter and replacement questionnaire were enclosed (see Appendix G). The survey and other materials enclosed in the mailings to supervisors (see Appendices A and E through I) conformed to guidelines delineated by

Dillman (1978) who has reported an average return rate of 77% for questionnaires that incorporate his suggestions.

#### **Data Analyses**

The primary data analyses planned included stepwise discriminant analyses and forced discriminant analyses with the jackknife option. The goal of the research was to identify variables associated with classification as a referrer or nonreferrer. Discriminant analysis was chosen because it yields a combination of predictor variables which are used to classify persons into groups of interest. In order to determine if the predictor variables were inter-related, it was planned to perform a factor analysis on those variables found to be associated with referral and nonreferral.

## CHAPTER V. RESULTS

### Introduction to Results

The discussion of results is organized as follows:

- (a) overview of results
- (b) issues regarding the data
- (c) statistical analyses
- (d) frequency distributions for responses to nine predictor variables
- (e) summary of results

### Overview of Results

Numerous issues regarding the data, i.e., responses of supervisors to the survey, will be discussed in the Results section and include:

- (a) discrepancy in number of referrers
- (b) attrition of supervisors
- (c) survey return rate
- (d) EAP training for IDOT supervisors prior to and during the data collection period
- (e) compression of selected supervisor responses
- (f) questions exempted from replacement of missing values
- (g) missing values
- (h) binary recoding of selected variables

After a discussion of the just previously listed issues, the actual results of the study are presented. For ease of reading, the results of the statistical analyses are grouped into subsections as follows:

- (a) 1 tests of Question 1 and Question 28
  - (b) stepwise discriminant analyses
-

(c) forced discriminant analyses with jackknife option

(d) factor analysis of predictor variables

A table is presented of the frequencies of the responses to eight variables found to be associated with referral or nonreferral. A summary is given at the end of the Results section to highlight the major findings.

In order to orient the reader, a brief summary of results will now be given. The computerized statistical package of SAS Institute, Inc. (1985a, 1985b) was used to perform the  $t$  tests, stepwise discriminant analyses, factor analysis, and frequency distributions. The BMDP.7M statistical package was used to compute the forced discriminant analyses (Jennrich and Sampson, 1983). The  $t$  tests of questions 1 and 28 illustrated that there were significant differences in mean responses on the two questions between the two groups. Specifically, referrers believed the EAP to be more effective than did nonreferrers, and referrers had spent more years than nonreferrers in a supervisory role with all current and past employers.

The results of the stepwise discriminant analysis indicated that the forward and backward selection of variables yielded a slightly different combination of predictor variables. Each set of variables resulting from the stepwise discriminant analyses were entered into two separate forced discriminant analyses. The forced discriminant analysis yielded: (a) classification functions of each of the two sets of predictor variables for each of the two groups of supervisors and (b) jackknifed probability estimates of correct classification into each of the two groups as each of the two sets of predictor variables were sequentially entered into the discriminant analyses. The forced discriminant analyses were used to answer the main research

question: Which variables are associated with supervisor referral or nonreferral?

A decision was made to focus on the results of the forward stepwise discriminant analysis which yielded 14 predictor variables. The jackknifed probability estimates of the percent of referrers and nonreferrers correctly classified indicated that the first 8 predictor variables entered in the discriminant analysis were equally as accurate at classification as were all 14 predictor variables. In order to examine the inter-relationships of those 8 predictor variables, a factor analysis on the 8 predictor variables was computed and it was found that 4 of the 8 predictor variables were inter-related. For those 8 predictor variables, frequency tables of supervisors' responses were computed for each of the two groups and also for the nonreferring group who had not noticed subordinates with job performance problems.

#### Issues Regarding the Data

##### Discrepancy in Number of Referrers

As mentioned in the Subjects and Setting portion of the Method section, a discrepancy in the number of referrers arose. The original list provided by the state EAP coordinator had 136 names. After supervisors had returned their surveys and before data entry into a computer file, the provided list of referrers' identification numbers was compared with the identification numbers on surveys of those supervisors indicating that they had made a referral to the EAP. It became apparent that there was a discrepancy between the list provided and what supervisors were actually indicating about their status as referrers or nonreferrers. There were several types of errors in the

provided list. The author communicated with the EAP Coordinator, the provider of the list of referrers, to resolve the discrepancies. After adjustments were made to the list of referrers, there were 171 referrers. See Appendix B for a discussion of the resolution of the discrepancies.

#### Attrition of Supervisors

Due to the readjustment in supervisor numbers because of attrition and the one supervisor who was sent two surveys, there were actually 485 supervisors in the final study (see Appendix H for specifics).

#### Return Rate of the Survey

Of the 485 supervisors, 472 returned their surveys which is a return rate of 97.3%. There were several unusable returns which contributed to a return rate of useable surveys of 466 out of 485 or 96.1%. The 466 useable surveys included 164 referrers out of the original 171 referrers, a rate of 95%, and 302 nonreferrers out of the original 314 nonreferrers, a rate of 96.1%. Of the 302 surveys returned from nonreferrers there were 108 nonreferring supervisors or 35.8% who responded with choice #1 to question 7 (see Appendix A for a copy of the survey), indicating that they had not referred any subordinates to the EAP and that they had never noticed a subordinate with a job performance problem. Consequently, those 108 supervisors were not included in the major portion of the data analyses in order to control for opportunity of a supervisor to make a referral to the EAP. That deletion yielded the following two groups of supervisors used in the major portion of the data analyses: 194 nonreferring supervisors who had noticed a subordinate with a job performance problem and 164 referrers.



In summary, there were 466 surveys available for data analyses. Of those 466 supervisors there were three groups of supervisors:

- (a) 108 nonreferring supervisors who had never noticed a subordinate with a job performance problem (as mentioned previously, when reference is made to this group the name "nonreferrers who never noticed a subordinate with a job performance problem" will be used)
- (b) 194 nonreferrers who had noticed a subordinate with a job performance problem (as mentioned previously, when a reference is made to this group the name "nonreferrers" will be used)
- (c) 164 referrers

The preceding groups b and c were the focus of the majority of the data analyses and when summed they yielded 358 supervisors. Of those 358 supervisors, referrers consisted of 45.8% of the group and nonreferrers who had noticed a subordinate with a job performance problem consisted of 54.2% of the group.

#### EAP Training for IDOT Supervisors Prior to and During the Data Collection Period.

After the data were collected the EAP Coordinator informed the author of the present paper that the State of Iowa formally approved the reorganized EAP in January. As a consequence of the formal approval, preparation for supervisor training in EAP use was begun in January. During February, March, and April many of the supervisors in the present study received training. Question 4 (see Appendix A), which concerned number of hours of training received by supervisors was written before there was knowledge that the

February, March, and April training would occur. Due to the training in 1988, the hours of training received by some supervisors did not match the hours of training which were listed as response choices to question 4. Therefore, any data analyses of question 4 must be viewed with caution because the validity of supervisor responses is questionable. Many supervisors were not able to accurately indicate the number of hours of training they had received.

#### Compression of Selected Supervisor Responses

Questions 9-11 were essentially equivalent to questions 13-15; each set measured social distance between supervisor and subordinate. The only difference in those sets of questions is that questions 9-11 were intended for nonreferrers who had noticed an employee with a job performance problem and questions 13-15 were intended for referrers. A computer program was written to compress the data so that questions 9-11 and 13-15 could be combined prior to the discriminant analysis, the primary analysis of interest.

#### Replacement of Missing Values

A number of supervisors did not respond to one or more questions on the survey. Because the planned data analyses would eliminate from analysis any supervisor who had one or more missing values, it was necessary to replace missing values. Details of the procedures used to replace missing values are discussed in Appendix J.

#### Recoding of Selected Variables

Supervisors' responses to some of the questions in the survey were recoded so that the responses would yield more information when entered into the discriminant analysis. For details of the recoding process see Appendix K.

## Statistical Analyses

### t Tests of Question 1 and Question 2B

The results of the  $t$  test on question 1 indicated that referrers rated the EAP as significantly more effective ( $M = 3.56$ ) than did nonreferrers ( $M = 3.11$ ),  $t(324) = 4.78$ ,  $p < .0001$ . The results of the  $t$  test on question 2B indicated that referrers had served in a supervisory role in any organization significantly more years ( $M = 15.91$ ) than had nonreferrers ( $M = 13.18$ ),  $t(326) = 2.73$ ,  $p < .007$ .

Questions 1 and 2B were not included the primary analyses, stepwise discriminant analysis and forced discriminant analysis because there were 32 supervisors out of the 358 of interest who did not answer question 1 and 30 supervisors out of the 358 of interest who did not answer question 2B. It was determined to select a  $t$  test to analyze questions 1 and 2B because the question of interest was whether or not the mean response of the 2 groups would be significantly different on each of the 2 variables.

### Stepwise Discriminant Analyses

Stepwise discriminant analysis was chosen because the goal of the research was to identify variables associated with classification as a referrer or nonreferrer. Discriminant analysis is designed to identify variables which predict classification. The results of the stepwise discriminant analyses indicated that the forward selection of variables and the backward elimination of variables yielded a slightly different combination of predictor variables. The forward selection yielded 14 predictor variables which distinguished between referrers and nonreferrers while the backward elimination did not eliminate 23 predictor variables. The forward selection entered variables into

the discriminant analysis from highest to lowest  $F$  values. The forward selection terminated when it reached a predetermined significance level of .15, a level set by the researcher. In other words, the forward selection ended when variables to be entered had  $p$  values greater than .15. The results of interest were the variables entered because they were selected as being associated with referral or nonreferral.

The backward selection eliminated variables in the order of lowest to highest  $F$  values. The program terminated when it reached the predetermined significance level of .15. In other words, the backward elimination terminated when variables to be eliminated had  $p$  values equal to or less than .15. The results of interest were the variables not eliminated because those were associated with referral or nonreferral.

The forward and backward analyses did not yield identical sets of predictor variables because the variables were inter-related. After each step in both the forward and the backward analyses, the  $F$  values of each of the remaining variables was changed. Because some of the variables were related to others, if one particular variable was selected to be entered or eliminated in the discriminant analysis, that selection would influence the  $F$  value of the other remaining variables to which the selected variable was related.

A crucial point regarding the predictor variables selected in the stepwise discriminant analyses is that some were not actual survey questions but were a specific response to a particular question. For example, the response of first line supervisor (L1), response of 1 to question 23, was found to be a predictor variable. Because some of the predictor variables were specific responses to survey questions, it is helpful to provide a table to define those response

names (see Table 1). Results of the forward selection of variables are shown in Table 2 and results of the backwards selection are shown in Tables 3. It is necessary to use Table 1 to interpret the names of some of the predictor variables which are listed in Tables 2 and 3.

The only supervisors included in the discriminant analyses were referrers and nonreferrers who had noticed a subordinate with a job performance problem. Those questions excluded from the stepwise discriminant analysis included questions 1, 6, 7, 8, 10, 12, 14, 21, and 26.

**Table 1. Definitions of Specific Response Names**

<b>Response Name Number (Predictor Variable)</b>	<b>Survey Question Number</b>	<b>Survey Response</b>	<b>Content of Survey Response</b>
L1	23	1	First line supervisor
TIMEW1	11 & 15	Missing response	Supervisors who never worked at the same level with subordinate most recently referred or noticed to have a problem
TIMEW2	11	1, 2, 3, & 4	Supervisors who worked at the same level with subordinate most recently referred or noticed to have a problem
M1	16A	1, 2, & 3	Supervisors' beliefs that management was not supportive of the EAP
M2	16A	4	Supervisors' beliefs that management was supportive of the EAP

Table 1 (continued)

<b>Response Name Number (Predictor Variable)</b>	<b>Survey Question Number</b>	<b>Survey Response</b>	<b>Content of Survey Response</b>
M3	16A	5	Supervisors' beliefs that management was very supportive of the EAP
M4	16A	6	Supervisors' response that they did not know how much support the EAP received from management
U3	16B	5	Supervisors' beliefs that the union was very supportive of the EAP
U4	16B	6	Supervisors indicating they did not know how supportive the union was of the EAP
P1	24	1	Occupational category of majority of employees supervised was clerical
P2	24	2	Occupational category of majority of employees supervised was technical
SOC1	9	0	Supervisors indicating that they had never socialized with subordinate most recently referred or noticed to have a problem

**Table 2. Predictor Variables Entered in a Forward Selection Stepwise Discriminant Analysis**

<b>Predictor Variable</b>	<b>F</b>	<b>p</b>
<b>L1 (First line supervisor)</b>	<b>65.42</b>	<b>.0001</b>
<b>Q20A (Told to refer by own supervisor)</b>	<b>41.92</b>	<b>.0001</b>
<b>Q2C (Degree of familiarity with procedures of referral)</b>	<b>32.84</b>	<b>.0001</b>
<b>TIMEW1 (Never worked as peer with subordinate)</b>	<b>11.62</b>	<b>.0007</b>
<b>M4 (Don't know amount of support management gives EAP)</b>	<b>9.52</b>	<b>.002</b>
<b>Q2E (Name of EAP coordinator)</b>	<b>6.39</b>	<b>.01</b>
<b>Q5B (Want more training in discussing poor job performance with subordinates)</b>	<b>6.65</b>	<b>.01</b>
<b>P2 (Majority of subordinates are in technical occupations)</b>	<b>5.95</b>	<b>.01</b>
<b>Q19B (Believe takes too much time to talk with subordinates about poor job performance)</b>	<b>5.77</b>	<b>.02</b>
<b>Q17D (Believe referral related to career advancement)</b>	<b>4.19</b>	<b>.04</b>
<b>Q3C (Saw and may have read DOT newsletter)</b>	<b>3.91</b>	<b>.05</b>
<b>Q17B (Believe EAP is good way to help subordinate)</b>	<b>3.47</b>	<b>.06</b>
<b>SQC1 (Never socialized with subordinate)</b>	<b>3.44</b>	<b>.06</b>
<b>P1 (Majority of subordinates are in clerical occupations)</b>	<b>3.28</b>	<b>.07</b>

**Table 3. Predictor Variables not Removed in a Backward Elimination Stepwise Discriminant Analysis**

<b>Predictor Variable</b>	<b>F</b>	<b>p</b>
Q20A (Told to refer by own supervisor)	27.99	.0001
Q2C (Degree of familiarity with procedures of referral)	22.57	.0001
L1 (First line supervisor)	22.22	.0001
TIMEW1 (Never worked as peer with subordinate)	11.55	.0008
P1 (Majority of subordinates are in clerical occupations)	10.79	.0012
Q27 (Number of years with the DOT)	10.54	.0013
Q5B (Went more training in discussing poor job performance with subordinates)	10.21	.001
M1 (Believe management is not supportive of EAP)	10.15	.0016
Q19B (Believe takes too much time to talk with subordinates about poor job performance)	8.61	.004
Q2F (Name of EAP coordinator)	8.15	.005
M2 (Believe management is supportive of EAP)	7.86	.005
P2 (Majority of subordinates are in technical occupations)	7.70	.006
Q17D (Believe referral related to career advancement)	5.55	.02
Q25 (Number of years in present position)	5.55	.02
U4 (Don't know how supportive the union is of EAP)	5.02	.03
Q3C (Saw and may have read DOT newsletter)	4.78	.03



Table 3 (continued)

Predictor Variable	E	D
Q17B (Believe EAP is good way to help subordinate)	4.40	.04
U3 (Believe union is very supportive of EAP)	4.07	.04
Q2E (Degree of familiarity in how to contact the EAP)	3.42	.06
Q22 (Age)	3.01	.08
Q3D (Saw and may have read IDOP <u>Personnelwise</u> newsletter)	2.57	.11
TIMEW2 (Worked as peer with subordinate)	2.57	.11
M3 (Believe management was very supportive of EAP)	2.29	.13

When comparing Tables 2 and 3, it was found that the differences between the variables in the forward and backward selection were as follows:

(a) the forward selection yielded 2 predictor variables not found to be predictor variables in the backward analysis:

1. M4 (response 6 to question 16A): supervisors indicating they did not know how much support the EAP received from management
2. SOC 1 (response 0 to question 9): supervisors indicating they had never socialized with the subordinate most recently referred or noticed to have a problem

(b) the backward elimination yielded 11 predictor variables which were not found as predictor variables in the forward selection (use Table 1 and Appendix A to interpret the list of variables):

1. question 27
2. M1
3. M2
4. question 25
5. U4
6. U3
7. question 2E
8. question 22
9. question 3D
10. TIMEW2
11. M3

Because the forward analysis yielded slightly different results than the backward analysis, it may be concluded that the data are sufficient to select

the most statistically powerful predictor variables but that the data are insufficient to select those predictor variables which have less power in accurately classifying the supervisors. Those variables which may be labeled as the important predictors are those which are in common in both of the stepwise discriminant analyses.

In a discussion of the two sets of predictor variables, the 23 predictor variables and the 14 predictor variables, it is important to clarify the direction of supervisor response on each question which was found to be associated with referral or nonreferral. Taking supervisor familiarity with the EAP as an example, it is important to know whether more familiarity, as opposed to less familiarity, is associated with referral. In order to have that directional information, it was necessary to compute for each set of predictor variables a BMDP forced discriminant analysis (Jennrich & Sampson, 1983) which yielded classification functions which were used to determine directional information.

#### Forced Discriminant Analysis with Jackknife Option

Two separate forced discriminant analyses were computed for each of the sets of 14 and 23 predictor variables which resulted from the stepwise discriminant analysis. Variables were entered in descending order of E value into the two discriminant analyses with the jackknife option. The forced discriminant analyses were used to answer the main research question: Which variables are associated with supervisor referral or nonreferral? Those discriminant analyses yielded for each set of variables:

- (a) classification functions of the 14 and 23 predictor variables for each of the two groups of supervisors

(b) jackknifed probability estimates of correct classification into each of the two groups of interest as each of the 14 and 23 predictor variables were sequentially entered into the discriminant analyses. Calculations were made using the classification to determine whether each variable was associated with referral or nonreferral.

The BMDP forced discriminant analysis program used in the present study (Jennrich & Sampson, 1983) included the jackknife classification method. That particular classification method involves a series of three steps as follows:

- (a) Step 1. Delete the responses of one subject from the sample
- (b) Step 2. Use the remaining data to construct the classification rule
- (c) Step 3. Put the subject's responses back in the sample and remove the responses of another individual. Then cycle back to do steps 2 and 3 until responses of all persons in the sample have been sequentially removed and replaced

The jackknife classification method is more accurate than other methods of classification available on statistical software packages.

The quality of forward and backward selection may be determined by comparing the percent of supervisors correctly classified as referrers and nonreferrers. In the last step of each analysis the total percent of correctly classified supervisors was 78.8% and 76.8%, respectively. An examination of steps 1 through 10 of both analyses revealed that in the first 4 steps of the forced discriminant analyses that the same variables were entered. Except for predictor variables M2 and M4, Steps 5 through 10 entered the same variables but in slightly different order. M2 and M4 are different responses to question

16A, supervisors' beliefs regarding the degree of management support for the EAP and may be considered as almost identical predictor variables because the same information is gained from knowing that they are predictor variables. In other words, one knows from both forced discriminant analyses that supervisor perception of degree of management support for the EAP is associated with referral and nonreferral. More specifically, from the forced discriminant analysis based on the 23 predictor variables, it was found that M2, supervisors' perceptions that management was supportive of the EAP were associated with referral. From the forced discriminant analysis based on the 14 predictor variables, it was found that supervisors' responses that they did not know how much support management gave the EAP were associated with nonreferral.

For purposes of further data analyses and discussion of the results, it was decided to focus on the first 8 steps of the forced discriminant analysis based on the 14 predictor variables entered in the forward stepwise discriminant analysis (see Table 2). That decision was made because the predictor variables entered in the first 8 steps of the analysis based on the 14 predictor variables were comparable to the predictor variables in the first 10 steps of the analysis based on the 23 predictor variables and would consequently be interpreted as having the most statistical power and being most important in accurately classifying supervisors.

When the percent correctly classified values were examined, it was determined that the variables entered in the first 8 steps of the discriminant analysis were as accurate at predicting classification as were all 14 of the

**predictor variables. In other words, steps 9 through 14 did not either add or subtract any appreciable total predictive power.**

**It must be stressed that some of the variables which were included in the stepwise discriminant analyses were significantly correlated. The implication of that fact is that the variables found to be significant predictors also represented variables with which they were significantly correlated. Specifically, Q2C (degree of familiarity with procedures of referral) and Q2F (degree of familiarity with the name of the EAP coordinator) were significantly correlated with the following additional questions which measured familiarity:**

- (a) Q2A: How to identify employees with job performance problems**
- (b) Q2B: Situations appropriate for referral**
- (c) Q2D: Disciplinary actions and procedures for dealing with employees with job performance problems**
- (d) Q2E: How to contact the EAP.**

**Consequently, it may be concluded from the results that referral was associated with supervisors expressing more familiarity with the EAP as measured by all six items which measured familiarity, Q2A-Q2F.**

**In addition, the predictor variable of supervisors' perceptions of the degree of management support for the EAP (Q16A) was found to be significantly correlated with supervisors' perceptions of degree of support for the EAP from the union (Q16B) and from their own immediate supervisor (Q16C). In other words, because that set of variables was significantly correlated, it may be concluded from the results that supervisors' lack of**

knowledge of the degree of support for the EAP from management, the union, and their own immediate supervisor was related to nonreferral.

The predictor variable which measured expressed need for additional training in how to discuss poor job performance with subordinates (Q5B) was found to be significantly correlated with the two following variables:

- (a) Q5A: How to identify employees with job performance problems
- (b) Q5C: How to make a referral.

In other words, because those three variables were significantly correlated it may be concluded from the results that being a referrer was associated with expressing a need for further training in the three areas of how to discuss poor job performance with subordinates, how to identify employees with job performance problems, and how to make a referral.

Finally, the predictor variable which measured the frequency of supervisors' being instructed by their own supervisor to refer subordinates (Q20A) was found to be significantly correlated with the following variables:

- (a) Q18A, Q18B, Q18C: Degree to which supervisors were aware of other supervisors who had referred subordinates to the EAP
- (b) Q20B: Degree to which supervisors had their own supervisor instruct them in how to make a referral to the EAP.

In other words, because the four variables Q18A-Q18C and Q20B were significantly correlated, it may be concluded from the results that referral was associated with supervisors being aware of other supervisors who had referred subordinates to the EAP and was associated with their own immediate supervisor instructing them to make a referral and in how to make the referral.

### Factor Analysis of Predictor Variables

In order to examine the inter-relationships of the first 8 predictor variables entered in the forced discriminant analysis using the 14 predictor variables, an iterated principal factor analysis on the 8 predictor variables was computed. One factor was retained using the scree plot to determine retention of factors. The factor pattern is presented in Table 4.

The 4 predictor variables significantly loaded on Factor 1, using a cutoff of .30 may be interpreted as an inter-related set of variables associated with supervisor referral and nonreferral. Specifically, as shown in Table 4, predictor variables question 2F (name of the EAP staff member) and question 2C (procedures involved in referring employees to the EAP) loaded significantly positively on Factor 1. Predictor variables L1 (response 1 to question 23: supervisors indicating they were first line supervisors) and M4 (response 6 to question 16A: supervisors indicating they did not know how much support the EAP received from management) loaded significantly negatively on Factor 1.

The factor may be interpreted as follows: the predictor variables of familiarity with the EAP (questions 2C and 2F) are related in a significant and negative manner to being a first line supervisor and not knowing how much support management gives the EAP. In other words, an inter-related set of predictor variables associated with referral are familiarity with the EAP, being in middle or upper-level management, and having an opinion about how much support the EAP receives from management. The previous statement may be made because question 23 was recoded so that responses 2 and 3 (middle



and upper level management, respectively) were grouped together as one predictor variable and labeled as L2.

**Table 4. Factor Pattern and Final Communality Estimates of 8 Predictor Variables**

<b>Predictor Variable Name</b>	<b>Factor Loading Estimate</b>	<b>Final Communality</b>
Q2F (Name of EAP coordinator)	.69	.47
Q2C (Degree of familiarity with procedures of referral)	.58	.33
Q20A (Told to refer by own supervisor)	.26	.07
TIMEW1 (Never worked as peer with subordinate)	.07	.005
P2 (Majority of subordinates are in technical occupations)	-.001	.000002
Q5B (Want more training in discussing poor job performance with subordinates)	-.03	.0009
L1 (First line supervisor)	-.48	.23
M4 (Don't know amount of support management gives EAP)	-.58	.34

**Percent Variance Explained by Factor: 18%**

**Frequencies of Supervisors' Responses on 8 Predictor Variables**

For the 8 predictor variables, frequency tables of supervisors' responses were computed for each of the two groups and also for the nonreferring group who had not noticed subordinates with job performance problems (see Table 5).

**Table 5. Percent in each Response Category for First 8 Predictor Variables**

<b>Predictor Variable Name &amp; Response Categories</b>	<b>% Referrers</b>	<b>% Nonreferrers who noticed a subordinate with a problem</b>	<b>% Nonreferrers who did not notice a subordinate with a problem<sup>a</sup></b>
<b>Q23</b>			
1 <sup>b</sup> (First line supervisor)	51.5	87.5	83.8
2 and 3 (middle and upper management)	48.5	12.5	16.2

<sup>a</sup>This group of supervisors was not included in the discriminant analysis so the superscripts adjacent to the variable names and response names do not apply to this group of supervisors.

<sup>b</sup>This response on this predictor variable is associated with classification as a nonreferrer.

Table 5 (continued)

Predictor Variable Name & Response Categories	% Referrers	% Nonreferrers who noticed a subordinate with a problem	% Nonreferrers who did not notice a subordinate with a problem <sup>a</sup>
<b>Q20A<sup>c</sup> (number of times supervisor told by own supervisor to refer a subordinate)</b>			
1 (Never)	48.8	80.2	88.8
2	17.1	11.5	3.7
3 (Sometimes)	30.5	6.8	7.4
4	2.4	.5	0.0
5 (Often)	1.2	1.0	.9
<b>Q2C<sup>c</sup> (Degree of familiarity with procedures for referral)</b>			
1 (Very unfamiliar)	0.0	7.4	13.1
2 (Unfamiliar)	5.5	17.9	6.5
3 (Not sure)	15.2	23.7	30.8
4 (Familiar)	65.2	50.5	47.7
5 (Very familiar)	14.0	.5	1.9

<sup>c</sup>Supervisor responses of higher value on this predictor variable are associated with classification as a referrer.

Table 5 (continued)

Predictor Variable Name & Response Categories	% Referrers	% Nonreferrers who noticed a subordinate with a problem	% Nonreferrers who did not notice a subordinate with a problem <sup>a</sup>
<b>Q11 (&amp; Q15) (Length of time worked with subordinate as a peer)</b>			
<b>Missing Response<sup>d</sup> (Never worked with subordinate as a peer)</b>			
	78.0	61.9	were told to skip this Question
1, 2, 3, & 4 (Worked with subordinate as a peer)	22.0	38.1	
<b>Q16A (Belief of degree of support by management of EAP)</b>			
1 (Very unsupportive)	0.0	1.6	0.0
2	1.2	1.6	0.0
3	7.3	4.7	2.8
4	19.5	12.5	10.2
5 (Very supportive)	53.0	23.4	26.9

<sup>a</sup>This response on this predictor variable is associated with classification as a referrer.

Table 5 (continued)

Predictor Variable Name & Response Categories	% Referrers	% Nonreferrers who noticed a subordinate with a problem	% Nonreferrers who did not notice a subordinate with a problem <sup>a</sup>
6b (Don't know how supportive management is of EAP)	18.9	56.3	60.2
<b>Q2F<sup>c</sup> (Degree of familiarity with name of EAP coordinator)</b>			
1 (Very unfamiliar)	8.5	16.8	22.6
2 (Unfamiliar)	8.5	24.1	18.9
3 (Not sure)	15.2	29.3	25.5
4 (Familiar)	40.9	27.2	30.2
5 (Very familiar)	26.8	2.6	2.8
<b>Q24 (Occupational category of the majority of subordinates)</b>			
P1 (Clerical)	11.1	14.1	15.4
P2b (Technical)	24.1	35.6	26.0
P3 (Blue collar)	35.8	36.6	46.3
P4 (Security)	1.9	2.1	1.0
P5 (Professional)	20.4	9.9	14.4
P6 (Management)	6.8	1.6	0.0

Table 5 (continued)

Predictor Variable Name & Response Categories	% Referrers	% Nonreferrers who noticed a subordinate with a problem	% Nonreferrers who did not notice a subordinate with a problem <sup>a</sup>
<b>Q5B<sup>c</sup> (Want more training in discussing poor job performance with subordinates)</b>			
1 (Strongly disagree)	2.4	3.1	3.8
2 (Disagree)	25.6	28.1	31.1
3 (Not sure)	8.5	18.2	17.9
4 (Agree)	49.4	42.2	41.5
5 (Strongly agree)	14.0	8.3	5.7

### Summary of Results

The  $t$  tests of questions 1 and 28 illustrated that there were significant differences in mean responses on the two questions between the two groups. Specifically, referrers believed the EAP to be more effective than did nonreferrers, and referrers had spent more years than nonreferrers in a supervisory role with all current and past employers.

The results of the stepwise discriminant analysis indicated that the forward and backward selection of variables yielded a slightly different combination of predictor variables. Each set of variables resulting from the stepwise discriminant analyses were entered into two separate forced discriminant analyses. The forced discriminant analyses were used to answer the main research question: Which variables are associated with supervisor referral or nonreferral? A decision was made to focus on the results of the forward stepwise discriminant analysis which yielded 14 predictor variables. The jackknifed probability estimates of the percent of referrers and nonreferrers correctly classified indicated that the first 8 predictor variables entered in the discriminant analysis were equally as accurate at classification as were all 14 predictor variables. In order to examine the inter-relationships of those 8 predictor variables, a factor analysis on the 8 predictor variables was computed and it was found that 4 of the 8 predictor variables were inter-related. For those 8 predictor variables, frequency tables of supervisors' responses were computed for each of the two groups and also for the nonreferring group who had not noticed subordinates with job performance problems.

A discussion of the 4 inter-related variables is presented first.

Specifically, as compared to nonreferring supervisors, referring supervisors were significantly more:

- (a) familiar with the EAP, as measured by two variables
- (b) likely to be in middle and upper management
- (c) likely to have an opinion about how much support the EAP receives from management, the union, and their own immediate supervisor.

Of the 4 variables which were not inter-related, it was found that compared to nonreferring supervisors, referring supervisors were significantly more likely to:

- (a) have never worked as a peer in a nonsupervisory capacity with the subordinate most recently referred or noticed to have a problem
- (b) not be supervisors of technical employees
- (c) have expressed a need for additional training in how to identify employees with job performance problems, how to discuss poor performance with subordinates, and how to make a referral.

In addition, it was found that compared to nonreferring supervisors, referring supervisors were significantly more likely to:

- (a) have been a member of an informal network, as measured by survey items which indicated:
  - (1) referrers were aware of other supervisors who had referred subordinates to the EAP



- (2) referrers more often had their own supervisor instruct them in how to make a referral and suggest that they refer a subordinate to the EAP**

**The following variables were not associated with referral:**

- (a) age and all age-related variables except for level of supervision**
- (b) beliefs of supervisors regarding the effectiveness of the EAP**
- (c) education level of supervisor**
- (d) number of employees supervised**
- (e) supervisors' perceptions of benefits gained from referral**
- (f) supervisors' attitudes toward their role in referral**
- (g) recall of printed sources of information about the EAP**
- (h) hours of training received in EAP use.**

## CHAPTER VI. DISCUSSION

### Overview of Discussion

The discussion section is organized into the following subsections to discuss results of the data analyses:

- (a) the two variables on which  $t$  tests were performed: supervisor belief about the effectiveness of the EAP and supervisor years in a supervisory role
- (b) the 4 predictor variables which loaded significantly on the factor retained in the factor analysis
- (c) the 4 predictor variables which did not load significantly on the factor.

The discussion relates the results of the analyses to the Review of Literature. Results are placed in the context of Gilbert's framework and the usefulness of his framework in conceptualizing poor referral rates of supervisors is discussed. Limitations to the generalizability of the results of the present study are presented. Suggestions are made for future research directions.

#### $t$ Tests of Question 1 and Question 28

As presented in the Results section, the results of the  $t$  test on question 1 indicated that referrers rated the EAP as significantly more effective than did nonreferrers. That variable belongs in the external incentive category of Gilbert's (1978) model. The significant difference found in the  $t$  test of question 1 supports the hypothesis that supervisors' belief that the EAP is effective would be associated with referral. The results of the  $t$  test on question 28 indicated that referrers had spent more years in a supervisory role

with any organization. That variable belongs in all six of Gilbert's (1978) categories in his model. That significant difference just discussed, supports the hypothesis made prior to the data collection that a smaller number of years in a supervisory role would be associated with nonreferral. Those two hypotheses were made before it was determined that using questions 1 and 28 in the discriminant analyses would be inappropriate because of the number of missing values on each of the two questions.

The differences in the means between the two groups on questions 1 and 28 were very small in a "real-life" sense. A response of 3 on question 1, supervisor belief about effectiveness of the EAP, would be halfway between very ineffective (1) and very effective (5). Thus, a real-life difference between the computed means of 3.11 and 3.56 may be seen to be minimal at best. For question 28, number of years in a supervisory role with any organization, a real-life difference between the computed means of 13.18 years and 15.91 years may be regarded as not much of a difference.

Conclusions about the results for question 1, supervisor belief about the effectiveness of the EAP, are also difficult to make because there were 32 supervisors out of 358 who did not answer question 1. It was hypothesized that many supervisors skipped question 1 because there was little space between it and the last paragraph of instructions in the survey and supervisors may have just scanned the instruction paragraph and erroneously assumed that question 1 was part of the introductory paragraph. Pilot supervisors did not skip question 1. Perhaps because they were informed they were part of a pilot study, they were more careful in completing the survey. Because so many supervisors skipped question 1, it may be that with another group of

supervisors that supervisors' belief in effectiveness of the EAP would be associated with classification as a referrer.

Conclusions about the results for question 28, number of years in a supervisory role with any organization, are also difficult to make because there were 30 supervisors out of 358 who did not answer question 28. Because so many supervisors skipped question 28, it may be that with another group of supervisors that number of years in any supervisory role would be associated with referral.

#### **The 4 Predictor Variables which Loaded Significantly on the Factor Retained in the Factor Analysis**

It was found that 4 of the 8 predictor variables were significantly inter-related. Consequently, any discussion of those 4 predictor variables and their relationship to the literature reviewed and to Gilbert's (1978) framework, should be made in the context of the inter-relationships of those 4 predictor variables. In the next portion of the Discussion section a discussion is presented of both the results of the forced discriminant analyses and the results of the factor analysis. As mentioned previously, the forward stepwise discriminant analysis program yielded a combination of 14 predictor variables which were slightly different than the 23 predictor variables yielded from the backward stepwise discriminant analysis.

The factor pattern indicated that 4 variables and their corresponding Gilbert categories were significantly loaded on the factor as follows (the negative or positive sign indicates the direction of the factor loading):

- (a) + Q2F (name of the EAP staff Knowledge member)

- |            |          |  |                           |
|------------|----------|--|---------------------------|
| <b>(b)</b> | <b>+</b> | <b>Q2C (procedures involved with referring an employee to the EAP)</b>   | <b>Knowledge</b>          |
| <b>(c)</b> | <b>-</b> | <b>L1 (response 1 to question 23: first line supervisor)</b>   | <b>All six categories</b> |
| <b>(d)</b> | <b>-</b> | <b>M4 (response 6 to question 16A: supervisors indicating they did not know how much support the EAP received from management)</b> | <b>Incentives</b>         |

The 4 predictor variables previously listed may be interpreted as an inter-related set of variables associated with supervisor referral and nonreferral. More specifically, referring supervisors compared to nonreferring supervisors may be seen to be significantly more familiar with the EAP, more likely to be in middle and upper management, and more likely to have an opinion about how much support the EAP receives from management, the union, and their own immediate supervisor. That conclusion was possible because as mentioned in the Results section, all six variables which measured familiarity with the EAP were significantly correlated and because the three variables which measured supervisors' opinions about the degree of support for the EAP received from management, the union, and their own immediate supervisor were significantly correlated.

The hypothesis that more knowledge of the EAP would be associated with referral was supported because Q2C and Q2F (items which measured knowledge of the EAP) were found to be associated with referral. That finding is congruent with the literature reviewed which found that more knowledge of

the EAP was associated with referral (Beyer & Trice, 1978; Googins & Kurtz, 1981; Heyman, 1976; Young et al., 1987).

Another hypothesis which was supported by the results of the forced discriminant analysis was that lower supervisor level (an age-related variable) would be associated with nonreferral. Specifically, that hypothesis was supported because L1 (question 23, resp. 1: supervisor was a first line supervisor) was found to be associated with nonreferral. If supervisor level is seen as being inter-related to age of supervisor, the finding that lower level of supervisor was associated with nonreferral may be seen as congruent with the results of Beyer and Trice (1978) and Googins and Kurtz (1981) who found older age of supervisor was related to higher referral rates. However, two research studies did not find a relationship between age and referral rates (Reisman & Schrader, 1984; Young et al., 1987). It may be that in the absence of other strong influencing factors, that older age and variables related to it such as supervisor level, is associated with referral, but that in the presence other variables which have a greater influence on referral that the impact of age is less on referral rate.

The hypothesis that supervisor perception of support for the EAP by management would not be a significant predictor of referral or nonreferral was not supported because M4 was found to be associated with nonreferral. Specifically, the forced discriminant analysis found that M4 (response 6 to question 16A: supervisors indicating they did not know how much support the EAP received from management) was associated with nonreferral. That result fits with the literature which suggested that supervisor perception of management and union support for the EAP would be associated with referral

(Beyer, Trice, & Hunt as cited by Trice & Beyer, 1982b; Foote, Erfurt, & Austin as cited by Archambault et al., 1982). However, it is not possible to conclude from this study that supervisor perception of management support for the EAP is associated with referral. It is only accurate to state that having an opinion about the degree of management support or lack of support for the EAP is associated with referral and that not knowing how much support the management gives the EAP is associated with nonreferral.

**The 4 Predictor Variables Which Did Not Load Significantly on the Factor**

The 4 predictor variables found to be significantly associated with referral and nonreferral in the forced discriminant analysis, but which were not found to be significantly inter-related in the factor analysis were placed by the author into the following categories of Gilbert's (1978) model:

- |     |  |                       |
|-----|--|-----------------------|
| (a) | Q20A: Subject's own supervisor suggested subject refer a subordinate to the EAP  | Data (Feedback)       |
| (b) | TIMEW1: missing response to question 11: supervisors who never worked at the same level with the subordinate most recently referred or noticed to have a problem | Motivation (Internal) |
| (c) | P2 (Q24, resp. 2): occupational category of majority of employees supervised by supervisor was technical   | Data                  |
| (d) | Q5B: supervisor need for training in how to discuss poor performance with subordinate  | Knowledge             |

The hypothesis that supervisors' perceptions of amount and type of feedback on their performance would not be associated with referral was not supported because the following was found to be significantly associated with referral: subject's own supervisor suggested that the subject refer a subordinate to the EAP (question 20A). That particular variable had not been explored in the EAP literature, but was included in the study because Gilbert's (1976) model suggested that such a variable might affect performance. In addition, due to the significant correlation between Q20A and Q18A-Q18C it may be concluded that referral is associated with supervisors being aware of other supervisors who have made referrals. That result is similar to what Googins and Kurtz (1981) found.

The hypothesis that more social distance between supervisor and subordinate would be associated with referral was supported because TIMEW1 (missing response to question 11: supervisors never worked at the same level with the subordinate most recently referred or noticed to have a problem, i.e., a large amount of social distance between subordinate and supervisor) was found to be associated with referral. That finding is congruent with the literature reviewed (Googins, 1979; Trice as cited by Trice & Roman, 1972; Trice & Belasco, 1968; Trice & Beyer, 1982a). Social distance was placed by the author into Gilbert's internal motivation category.

The hypothesis that the occupational category variable would not be associated with referral or nonreferral was not supported because P2 (question 24, response 2: occupational category of majority of employees supervised by supervisor was technical) was found to be associated with nonreferral. However, there were some indications in the literature reviewed



that employees in different occupation levels have different likelihoods of being referred (Kleeman & Googins, 1983; Martin, Heckel, Goodrick, Schreiber, & Young, 1985/1986; Thoreson, Hosokawa, & Talcott, 1982; Trice & Beyer, 1977). The variable of occupational category of majority of employees supervised by supervisor was placed by the author in Gilbert's (1978) category of data.

The hypothesis that need for training about the EAP as expressed by supervisors would not be associated with referral or nonreferral was not supported because it was found that supervisor need for training in how to discuss poor performance with subordinates, question 5B, was associated with referral. In addition, because that variable was significantly correlated with Q5A (degree to which supervisors wanted more training in how to identify employees with job performance problems) and with Q5C (degree to which supervisors wanted more training in how to make a referral), it is possible to state that expressed need for more training on several issues related to the EAP is associated with referral. Although the literature reviewed did not consider that variable, there is some indication that supervisors do not like the process of discussing poor performance with subordinates, which is often labeled in the literature as constructive confrontation. Specifically, there are conflicting results as to whether or not supervisors' beliefs that they could handle by themselves subordinates with job performance problems are associated with referral or nonreferral (Beyer & Trice, 1978; Googins & Kurtz, 1981; Trice as cited by Trice and Roman, 1972). Also, there have been nondata based reports about supervisors' negative attitudes toward constructive confrontation (Kurtz, Googins, & Williams, 1980; Riediger, 1985).

The variable of supervisor desire for more training in the EAP was placed in the Gilbert (1978) category of knowledge.

The frequency table (Table 5) illustrated that there were very few differences between nonreferrers and nonreferrers who never noticed subordinates with job performance problems.

#### Limitations of the Present Study

Although the 96% return rate of the survey was excellent and high enough to determine that returns were representative of the sample, the study was limited to a survey of supervisors in only one work organization, the Iowa Department of Transportation. There may be aspects unique to the work environment of the IDOT which would influence supervisors' responses to the survey such that the results may not be generalizable to any other work organization. In addition, the type of work organization must be considered. Supervisors in a large state government department may differ in significant ways from supervisors in the private sector. Further, as discussed in the Review of Literature, EAPs differ from one work organization to the next and consequently, comparison from one EAP to another should be made with caution.

#### Implications of the Study for Future Research

The present study has several implications for future research in the topic area. Gilbert's (1978) model was found to be of use in conceptualizing the problem of low supervisor referrals. His model suggested some new variables which have not been considered in past EAP research and which were found in this study to be associated with referral or nonreferral:

- (a) supervisors' perceptions of amount and type of feedback on their performance, in Gilbert's category of data (Q20A-Q20B),**
- (b) supervisors' expressed need for additional training in issues related to the EAP, in Gilbert's category of knowledge (Q5A-Q5C).**

**In addition, this study confirmed the results of past researchers who found that the following variables are associated with referral:**

- (a) supervisors being more knowledgeable of the EAP, in Gilbert's category of knowledge (Q2A-Q2F)**
- (b) higher level of supervisor (Q23, responses 2 and 3), an age-related variable in all six of Gilbert's categories**
- (c) lower level of occupational category of majority of employees supervised, in Gilbert's category of data (Q24, resps. 1, 3, 4, 5, and 6)**
- (d) more social distance between supervisor and subordinate, in Gilbert's category of motivation (never worked as a peer with most recent subordinate noticed to have a job performance problem or subordinate most recently referred: Q11: missing resp.)**
- (e) having an opinion of perceived support of the EAP received from management, the union, and their own immediate supervisor.**

**The variable of gender had to be dropped from the present study because only a small percentage of the IDOT's employees and supervisors were female. Future research could consider that particular variable in combination with those variables found to associated with referral and or nonreferral. Also, research could be directed toward establishing reliability and validity for the measurement instruments used in this study. One idea for additional studies in this topic area would be to consider how supervisors who have noticed**

problem subordinates but have not made referrals handle such subordinates. Another area for future research would be to measure supervisors' referrals in an existing EAP program and to then institute training and other manipulations, based on the variables found to be associated with referral and nonreferral. After the training and manipulations were instituted the effect on the referral rate could then be measured.

The results suggest that the following changes in supervisor training would be associated with an increase in appropriate referral of subordinates to the EAP:

- (a) Encourage more middle managers to tell first line supervisors to refer their subordinates when appropriate
- (b) Increase supervisor knowledge of the EAP
- (c) Emphasize to supervisors that management, the union, and their own immediate supervisor are supportive of the EAP
- (d) Supervisors who previously worked as peers with their subordinates need additional training to emphasize the positive aspects of referral. Such supervisors may tend to view referral as "turning a buddy in" rather than helping their subordinate overcome a problem.

In addition, peer referral should be encouraged among technical employees. The literature reviewed indicated that some types of employment are more suited to peer referral rather than supervisor referral because close supervision does not occur for such positions.

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APPENDIX A. SURVEY

# Supervisors' Views of the Employee Assistance Program





Iowa State University is conducting a study of Iowa Department of Transportation (DOT) supervisors' views of the employee assistance program (EAP) available to the DOT. The EAP was established at the DOT to help employees with problems that may affect their job performance, and to serve as a place where supervisors could refer such employees. Although the EAP was moved in April 1986 to the Iowa Department of Personnel (IDOP), the EAP services are still available to DOT employees.

Some of the questions that follow use the phrase "problem employee" or "employee with a job performance problem." In this study the terms "problem employee" and "employee with a job performance problem" are defined as an employee who may show any one or more of the following behaviors: repeated use of sick leave beyond the normal amount, a decrease in quality or the amount of work performed, unauthorized absence from work, arriving at work late or leaving work early, repeated arguments with co-workers, etc. Please note that it is important to answer the questions in the order they are presented by working from the beginning to the end of the booklet. When you have completed the booklet, please staple it together and mail it. The postage is provided.

Q-1 The EAP is responsible for dealing with employees' job performance problems. What is your overall opinion of the EAP available to the DOT? (Circle the number of your answer).

Very Ineffective	1	2	3	4	Very Effective
	1	2	3	4	5

Q-2 Supervisors have varying degrees of familiarity with the EAP available to the DOT. How familiar or unfamiliar are you with the various aspects of the EAP listed below? (Circle the number of your answer).

	Very Unfamiliar	Unfamiliar	Not Sure	Familiar	Very Familiar
a. How to identify problem employees . . . . .	1	2	3	4	5
b. Situations in which it is appropriate to refer problem employees to the EAP . . . . .	1	2	3	4	5
c. Procedures for supervisors in referring problem employees to the EAP . . . . .	1	2	3	4	5
d. Disciplinary actions and procedures for dealing with problem employees . . . . .	1	2	3	4	5
e. How to contact the EAP . . . . .	1	2	3	4	5
f. Name of the EAP staff member . . . . .	1	2	3	4	5

Q-1 The following four questions concern sources of information about the EAP. (Circle the number of your answer).

	Did not see this information	Saw this information but did not read it	Have read this
a. Information included with paycheck .....	1	2	3
b. Posters on bulletin boards .	1	2	3
c. DOT newsletters .....	1	2	3
d. IDOP <i>Personnelwise</i> newsletter .....	1	2	3

Q-4 Now we would like to ask some questions about training regarding the EAP. What number of hours have you spent in training on how to use the EAP? (Circle the number of your answer).

- 1 NONE
- 2 ONE HOUR
- 3 TWO HOURS
- 4 SIXTEEN HOURS (TWO DAY COURSE ON THE TROUBLED EMPLOYEE)

Q-5 We would like your opinion of the need for additional training on how to handle problem employees. What do you think about the following statements? (Circle the number of your answer).

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
a. I need more training to help me identify problem employees .....	1	2	3	4	5
b. I need more training to help me in discussing poor job performance with problem employees .....	1	2	3	4	5
c. I need more training to help me with the steps involved in referring a problem employee to the EAP.....	1	2	3	4	5

Q-6 Have you referred any employees to the EAP since the time it was established in 1979? Please include employees you may have referred whom you have not immediately supervised. (Circle the number of your answer).

- 1 NO
- 2 YES (Skip to question #12 on page 4)

Q-7 In the past eight years or less as a supervisor at the DOT, have you ever noticed an employee you supervised who had a job performance problem? (Circle the number of your answer)

- 1 NO (Skip to question #16 on page 5)
- 2 YES

-4-

Q-8 How many employees that you have supervised at the DOT have you noticed with job performance problems that you felt may have been appropriate for a referral to the EAP?

\_\_\_\_\_ NUMBER

Q-9 Think of the employee under your supervision whom you most recently noticed had a job performance problem. How much, if any, have you socialized with that person at events unconnected with the job? (Circle the number of your answer).

- 0 NEVER
- 1 LESS THAN ONCE A MONTH
- 2 ONCE A MONTH
- 3 TWO TO THREE TIMES A MONTH
- 4 FOUR OR MORE TIMES PER MONTH

Q-10 Again, think of the employee under your supervision whom you most recently noticed had a job performance problem. Did you ever work with that employee when you were not their supervisor? (Circle the number of your answer).

- 1 NO (Go to question #16 on page 5)
- 2 YES

Q-11 Again, think of the employee under your supervision whom you most recently noticed had a job performance problem. What length of time did you work with that person when you were not their supervisor? (Circle the number of your answer).

- 1 LESS THAN SIX MONTHS
- 2 SIX MONTHS TO LESS THAN ONE YEAR
- 3 ONE YEAR TO LESS THAN TWO YEARS
- 4 TWO YEARS OR MORE

IF YOU HAVE NEVER MADE A REFERRAL TO THE EAP WHILE WORKING FOR THE DOT, SKIP TO QUESTION #16 ON PAGE 5

Q-12 How many male and female employees that you have supervised have you referred to the EAP since it was established in 1979?

\_\_\_\_\_ NUMBER OF MALES REFERRED

\_\_\_\_\_ NUMBER OF FEMALES REFERRED

Q-13 Think of the employee under your supervision who had a job performance problem and whom you most recently referred to the EAP. How much, if any, have you socialized with that person at events unconnected with the job? (Circle the number of your answer).

- 0 NEVER
- 1 LESS THAN ONCE A MONTH
- 2 ONCE A MONTH
- 3 TWO TO THREE TIMES A MONTH
- 4 FOUR OR MORE TIMES PER MONTH

Q-14 Again, think of the employee with a job performance problem that you most recently referred to the EAP. Did you ever work with that employee when you were not their supervisor? (Circle the number of your answer).

- 1 NO (Go to question #16 on page 5)
- 2 YES

Q-15 Again, think of the person you most recently referred to the EAP. What length of time did you work with that person when you were not their supervisor? (Circle the number of your answer).

- 1 LESS THAN SIX MONTHS
- 2 SIX MONTHS TO LESS THAN ONE YEAR
- 3 ONE YEAR TO LESS THAN TWO YEARS
- 4 TWO YEARS OR MORE

Q-16 Listed below are three statements about the support the EAP gets at the DCOT. Circle the number of your answer to indicate how much support you think the EAP gets from each of the following. If you don't know how much support the EAP gets, circle # 6 (Don't Know).

	Very Unsupportive				Very Supportive		Don't Know
	1	2	3	4	5	6	
a. In general how supportive is management of the EAP?	1	2	3	4	5	6	
b. In general how supportive is the union AFSCAIE of the EAP? .....	1	2	3	4	5	6	
c. In general how supportive is your immediate supervisor of the EAP? ....	1	2	3	4	5	6	

Q-17 The following list gives examples of benefits a supervisor might receive if they referred an employee to the EAP. Circle the number of the answer below that indicates how much of each benefit you think you might receive if you referred a problem employee to the EAP in the future.

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
a. The problem employee would become a more productive employee. ....	1	2	3	4	5
b. The EAP gives me a way to offer help to the troubled employee that is preferable to the use of discipline. ...	1	2	3	4	5
c. I would no longer have to deal with excessive absences or other problem symptoms because the employee would be helped by the EAP. ....	1	2	3	4	5
d. Good performance in referring problem employees has some relationship to my career advancement. ....	1	2	3	4	5

Q-18 a. During the year 1987, how often did you talk confidentially to other supervisors at any level to find a way to deal with a specific problem employee? (Circle the number of your answer).

Never                      Sometimes                      Often  
1                      2                      3                      4                      5

b. As far as you are aware, in 1987 how many supervisors other than yourself, do you know of who referred a problem employee to the EAP? (Circle the number of your answer).

NONE ONE TWO THREE FOUR FIVE OR MORE

c. As far as you are aware, in 1987 how many employees, other than those you supervise, have been referred to the EAP by their supervisors? (Circle the number of your answer).

NONE ONE TWO THREE FOUR FIVE OR MORE

Q-19 We are interested in your opinion of the process involved in dealing with a problem employee. Even if you have never made a referral to the EAP, please give your views of the following statements. (Circle the number of your answer).

Strongly Disagree      Disagree      Not Sure      Agree      Strongly Agree

- a. The EAP referral procedures are too difficult for me to learn ..... 1                      2                      3                      4                      5
- b. It takes too much time to talk about poor job performance with an employee who has a problem ..... 1                      2                      3                      4                      5
- c. The paperwork involved in reporting poor job performance discourages me from referring problem employees to the EAP. .... 1                      2                      3                      4                      5
- d. If I supervise a problem employee in the future, I intend to refer that employee to the EAP ..... 1                      2                      3                      4                      5

Q-20 Now we would like you to consider two questions about your immediate supervisor. (Circle the number of your answer).

Never                      Sometimes                      Often

- a. How often, if ever, has your supervisor suggested that you refer a problem employee to the EAP? ..... 1                      2                      3                      4                      5
- b. How often, if ever, has your supervisor given you suggestions on how to make a referral? ..... 1                      2                      3                      4                      5

-7-

Now we would like some information about you.

Q-21 Your sex. (Circle the number of your answer).

- 1 MALE
- 2 FEMALE

Q-22 Your present age \_\_\_\_\_ YEARS

Q-23 What level of supervision is your present position? (Circle the number of your answer).

- 1 FIRST LINE SUPERVISOR
- 2 MIDDLE MANAGER (OFFICE DIRECTOR, RESIDENT ENGINEER)
- 3 UPPER MANAGER (DISTRICT ENGINEER, BUREAU OR DIVISION DIRECTOR)

Q-24 In which occupational category are the majority of the employees you supervise? (Select only one answer and circle the number of your answer).

- 1 CLERICAL
- 2 TECHNICAL
- 3 BLUE COLLAR
- 4 SECURITY
- 5 PROFESSIONAL
- 6 MANAGEMENT

Q-25 Number of years in present position \_\_\_\_\_ YEARS

Q-26 Number of years in a supervisory role at the DOT \_\_\_\_\_ YEARS

Q-27 Number of years with the DOT \_\_\_\_\_ YEARS

Q-28 Number of years in a supervisory role with any organization \_\_\_\_\_ YEARS

Q-29 How many male employees do you currently supervise? \_\_\_\_\_ NUMBER OF MALES SUPERVISED

Q-30 How many female employees do you currently supervise? \_\_\_\_\_ NUMBER OF FEMALES SUPERVISED

TURN PAGE

**Q-32** Indicate the highest level of education you have completed. (Circle the number of your answer).

- 1** LESS THAN FOUR YEARS OF HIGH SCHOOL
- 2** HIGH SCHOOL DIPLOMA
- 3** FEWER THAN TWO YEARS COLLEGE, VOCATIONAL, OR TECHNICAL TRAINING
- 4** TWO YEARS COLLEGE, VOCATIONAL, OR TECHNICAL TRAINING (A.A. DEGREE OR OTHER TWO YEAR DEGREE)
- 5** THREE OR MORE YEARS OF SCHOOL BEYOND HIGH SCHOOL BUT NO DEGREE
- 6** B.S. OR B.A. DEGREE
- 7** SOME GRADUATE CLASSES
- 8** MASTERS DEGREE OR ABOVE

Thank you for your time in completing this survey. If you have any comments to make about the EAP at the DOT or about the survey, please print them in the space provided below.

Please place an "X" in the box below if you wish to receive a summary of the survey results.

**SURVEY RESULTS REQUESTED**

Please staple the survey together and mail it. The postage is provided.

**APPENDIX B. ATTRITION OF SUPERVISORS**

When preparing for follow-up mailings, it was discovered that there were two different subject identification numbers which were used to identify slightly different versions of the same name and that the two addresses were slightly different. Upon checking with the IDOT, it was discovered that the IDOT list was inaccurate in that it included the same person twice, but with two different identification numbers. Consequently, there were really only 492 supervisors in the study.

During the process of preparing follow-up mailings to nonrespondents, the IDOT was contacted to determine if some nonrespondents were due to attrition. It was discovered that: (a) one supervisor had retired, (b) one supervisor had resigned, and (c) one supervisor was on long-term disability.

Of the returned surveys there were several that were not completed because of supervisor attrition. Specifically: (a) one supervisor had retired as indicated on the survey, (b) two supervisors were no longer classified as supervisors, and (c) one person had resigned.

In summary, due to the readjustment in supervisor numbers because of attrition and the one supervisor who was sent two surveys, there were actually 485 supervisors in the final study.



## APPENDIX C: DETAILS OF PILOT STUDY

### Purpose of Pilot Study

As mentioned in the Methods section of the present paper, Dillman (1978) recommended that a pilot study be performed before conducting an actual survey so that survey items could be tested to determine if supervisors were able to understand and answer the items as directed.

### Method

#### Subjects and Setting

Of the 523 supervisors in the subject pool, 30 were chosen to be in the pilot study. The 30 supervisors in the pilot study were not included in the actual study which consisted of the remaining 495 supervisors.

Googins (1979) discussed the need to control for possible opportunities of the nonreferring supervisor to refer. That was accomplished in the present study by including question 7 in the survey which asked nonreferring supervisors to indicate whether or not they had noticed at least one employee with a job performance problem among the employees they had supervised in the past. That question yielded three groups of supervisors: referring supervisors, nonreferring supervisors who had noticed at least one subordinate with a job performance problem, and nonreferring supervisors who had never noticed an employee with a job performance problem. Because no previous researchers appear to have considered this question, it was difficult to estimate what proportion of the nonreferring supervisors would have noticed at least one subordinate with a job performance problem and what proportion would have never noticed an employee with a job performance problem.

Consequently, twice as many nonreferring supervisors as referring supervisors were included in the pilot study.

Using her records from EAP client contacts, the EAP Coordinator composed a list of supervisors who had referred at least one subordinate to the EAP. For the pilot study, 11 referrers and 19 nonreferrers were selected by the state EAP Coordinator.

The 30 supervisors were selected for the pilot in a manner to obtain a sample which included supervisors from a cross-section of:

- (a) geographical work locations in Iowa
- (b) supervisor levels (first-line supervisors, middle managers, and upper managers)
- (c) education levels (see Question 32)
- (d) occupational categories of employees supervised (see question 25)
- (e) ages
- (f) years with the IDOT
- (g) gender.

#### Procedure

On January 11, 1988 the pilot survey was mailed through in-house mail to 30 supervisors. The cover letter enclosed with the survey provided detailed information about the usefulness of the study to the organization and the supervisors, the importance of the individual responding, and assurances of confidentiality. The necessity of an identification number on the front cover of the survey was also explained in the cover letter. A letter from the State of Iowa EAP coordinator was also included. One week after the original questionnaire was mailed, a postcard reminder was sent to all supervisors to

thank those who had responded and to remind those who had not yet replied to do so. A second copy of the questionnaire and a new cover letter were sent to nonresponders on February 1, 1988, 3 weeks after the first mailing.

### Results

#### Return Rate

Of the 30 supervisors in the pilot study, 29 returned the survey. All 11 of the referrers returned their surveys. Of the 19 nonreferrers, one did not return a survey and one returned but did not complete a survey. Of useable returned surveys, 11 out of 17 nonreferring supervisors or 65% had noticed a subordinate with a job performance problem.

#### Modifications

Slight modifications were made to the survey as a result from comments of pilot supervisors. The changes were made to increase clarity of the survey. The only substantive change was made to questions 16a through 16c (see Appendix A).

Specifically, a sixth response choice was added to questions 16a through 16c. Several of the pilot supervisors did not circle one of the five response choices to questions 16a-16c. Instead, they wrote in the words "Don't know." Consequently the sixth category of "Don't know" was added for the actual study. In order to ensure that supervisors answered the revised question, an additional line of instruction was added to the set of questions 16a-16c. The added instruction was, "If you don't know how much support the EAP gets, circle #6 (Don't Know)." Such an addition obviously makes impossible any direct comparison between pilot and actual supervisors on questions 16a-16c. This was recognized at the time the change was made, but it was thought

necessary to add the sixth response choice of "Don't know" because so many pilot supervisors had indicated that as their preferred response.

#### Data Analyses

As discussed previously, questions 16a-16c were modified in such a way that comparison between pilot and actual supervisors on those questions was impossible. However, it was thought that it would be of use to determine if any of the other changes made in questions after the pilot may have led to significant differences in responses between pilot and actual supervisors. Individual  $t$  tests were performed using the statistical computerized package by SAS Institute, Inc. (1985a, 1985b). Due to the significant differences between responses in the pilot and the actual survey on questions 16a-16c, 17c, 20a, 20b, and 30 (see Table C-1) it was decided to eliminate pilot supervisors from data analyses involving actual supervisors.

Table C-1

Mean Values and Results of t Tests for Pilot and Nonpilot Subjects

Survey Item #	Mean		t	df
	Nonpilot	Pilot		
16a	4.45 <sup>a</sup>	3.68	3.01 <sup>b****</sup>	26.1
16b	3.90 <sup>a</sup>	3.00	3.31 <sup>c****</sup>	108.0
16c	4.33 <sup>a</sup>	3.73	2.32 <sup>b**</sup>	27.7
17c	2.90	3.38	-3.08 <sup>c****</sup>	480.0
20a	1.50	1.81	-1.80 <sup>c*</sup>	483.0
20b	1.44	1.81	-2.09 <sup>c**</sup>	480.0
30	3.41	1.60	2.45 <sup>b**</sup>	226.7

Note. All nonsignificant  $t$  tests were omitted from the present table. The values of degrees of freedom were different for each survey item tested due to supervisors omitting responses and due to whether or not the  $t$  test was computed with equal or unequal variances.

<sup>a</sup>Nonpilot supervisors who chose response #6 to this question were deleted from this  $t$  test because the survey for pilot supervisors did not contain response # 6.

<sup>b</sup>This  $t$  test was appropriately based on unequal variances.

<sup>c</sup>This  $t$  test was appropriately based on equal variances.

\*  $p < .07$ . \*\*  $p < .05$ . \*\*\*  $p < .01$ . \*\*\*\*  $p < .005$

**APPENDIX D. DISCREPANCY IN NUMBER OF REFERRERS****Supervisors who Indicated They were Referrers but were not on the Provided Referral List and Should have Been on the List**

There were 44 supervisors who were inadvertently not included on the referrer list which was provided who should have been listed as referrers. It was determined that the error had been a clerical oversight by the list provider. Consequently, when the responses of the 44 supervisors were entered into the computer data file they were coded as referrers.

**Supervisors who Responded both as Referrers and as Nonreferrers who were on the Provided Referral List**

There were 6 supervisors who, although on the referral list, responded as both referrers and as nonreferrers. It was determined that the 6 supervisors had not followed the directions when completing the survey and they were coded as referrers.

**Supervisors who may have Made a Referral to the EAP Prior to 1985**

There were 17 supervisors who indicated they had made a referral but who were not on the referrer list and who were not among the group of 50 inadvertently not listed. It was hypothesized that the 17 supervisors may have made a referral to the EAP prior to the time that records of referrals were kept, i.e., the 17 supervisors may have made a referral more than three years ago but not made a referral in the last three years. In the comments section at the end of the survey, many of the 17 supervisors indicated specific details about referrals they claimed to have made. Additional evidence to support the hypothesis that they had actually made referrals is provided by the fact that the 17 supervisors answered questions 12 through 15 on the survey

which asked specific questions about the referral. Consequently, a decision was made to have the 17 supervisors coded for as referrers.

**Supervisors Responding both as Referrers and as Nonreferrers who were not on  
the Referral List**

There were 4 supervisors not on the referral list who answered question 6 in the affirmative (indicating that they had made a referral) and answered questions 12-15 (as directed) but who also answered questions 7-11 which were only for nonreferrers to answer. The 4 supervisors in this discrepancy category were not among the 50 supervisors inadvertently deleted from the referrer list. It was hypothesized that the 4 supervisors failed to complete the survey as directed, but were actually referrers. Similar to the group just discussed, it was hypothesized that the 4 supervisors had made a referral to the EAP prior to the time records of referrals were kept and that they had not made a referral during the past three years when records were kept. A decision was made to code the 4 supervisors as referrers.

**Supervisor who Responded as both a Nonreferrer and a Referrer who was on the  
Provided Referral List**

There was 1 supervisor who, although on the list of referrers, responded both as a referrer and as a nonreferrer. Similar to the group of 4 supervisors just discussed, it was decided that the 1 supervisor had not followed the directions in the survey and to code that person as a referrer.

**Supervisors who Responded as Nonreferrers and were on the Provided List of  
Referrers by Oversight**

There were 30 supervisors who indicated that they considered themselves to be nonreferrers but who were listed as referrers on the provided list. It

was determined by the EAP coordinator that the 30 supervisors had been EAP clients or were on long-term disability and had not made a referral of a subordinate in their capacity as a supervisor. Those 30 supervisors were coded for data entry as nonreferrers.

#### **Supervisors who Inaccurately Responded as Nonreferrers**

There were 2 supervisors who self-reported to be nonreferrers and were supervisors for whom the EAP coordinator had records of each actually making a referral. In addition, the EAP coordinator stated that she could remember the 2 supervisors' cases and that each supervisor had indeed referred a subordinate. It was decided to code the 2 supervisors as referrers.

#### **Supervisors who Consulted with Supervisors a Level Below the Supervisors' own Level**

There were 9 supervisors who self-reported as nonreferrers but who were on the provided list of referrers. The EAP Coordinator determined that those 9 supervisors had not referred their own subordinates with problems, but had instead suggested to supervisors a level below the supervisors' level that those supervisors refer problem subordinates of their own. In other words, the 9 supervisors provided advice to a second set of supervisors, i.e., those below the level of the subjects, concerning problem subordinates of that second set of supervisors. Although technically the 9 supervisors had not made a direct referral of a problem subordinate to the EAP, the 9 supervisors were familiar with and advocating use of the EAP because they were recommending to a second set of supervisors that those supervisors refer their own subordinates to the EAP. Consequently, the 9 supervisors were coded as referrers because the focus of the present research was to identify factors that were associated



with supervisors' referral or nonreferral of subordinates with job performance problems to the EAP.

**Summary of Discrepancy in Number of Referrers**

In summary, after the previously listed adjustments were made to the list of referrers, there were 171 referrers.

**APPENDIX E. LETTER FROM EAP COORDINATOR**



TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF PERSONNEL  
THOMAS E. DONAHUE, DIRECTOR

Dear DOT Supervisor:

Enclosed you will find a letter and a survey from Iowa State University concerning the Employee Assistance Program (EAP). The results of this survey will be useful in improving the EAP services and training for supervisors and managers in state government.

The DOT supervisors were selected to participate in this survey because the EAP has been in existence in your agency since 1979. As you may know, this program was moved to the Iowa Department of Personnel in April 1986 as a part of state government reorganization. We are continuing to develop and expand the program so that it will be available to all state employees in all departments, statewide. Your responses to this survey will be helpful to our efforts in this expansion.

Please note that your responses will be anonymous and confidential. I appreciate your participation in this survey.

Sincerely,

Racquel Miller  
Employee Assistance Program Coordinator

LTR308/lm

**APPENDIX F. COVER LETTER**

College of Education  
Professional Studies  
N243 Lagomarcino Hall  
Ames, Iowa 50011

IOWA STATE  
UNIVERSITY

Telephone 515-294-4143

«DATA CLA»  
February 29, 1988

«name»  
«cost»  
«div»

Dear «sname»:

Iowa State University is conducting a study of supervisors' impressions of the employee assistance program (EAP) available to the Iowa Department of Transportation (DOT). The results of the study will be used to improve the EAP and the services it provides to you. As you may know, the EAP was established at the DOT to help employees with problems that may affect their job performance and to serve as a place where supervisors could refer such employees. Although the EAP was moved in April 1986 to the Iowa Department of Personnel (IDOP), the services are still available to DOT employees. The management at the DOT and the state EAP coordinator have given permission for and endorsed this study.

You have been selected to take part in the survey regarding the EAP. In order for the results to reflect the views of all supervisors it is very important that each survey be completed and returned.

Your responses will be kept completely confidential. The identification number on the front cover of the questionnaire will only be used to indicate whether or not you have returned your survey. After your survey is returned, the number will be cut off. Your name will not be associated with results of the study and your responses will be combined with those of other supervisors and reported as statistical summaries only.

If you wish to receive a summary of the results of the final study, please check the box at the end of the survey which says "results requested". I encourage you to write me if you have any questions. Thank you for your assistance.

Sincerely,

Janet L. Nord  
Project Director

**APPENDIX G. FOLLOW-UP POST CARD**

March 7, 1988

Last week a questionnaire seeking your views of the Employee Assistance Program available to the Iowa Department of Transportation (DOT) was mailed to you.

If you have already completed and returned it to us we want to thank you. If not, please return the questionnaire today. In order for the results to reflect the views of all supervisors it is very important that each survey be completed and returned.

If by some chance you did not receive the questionnaire or it got misplaced, please call Ms. Mary Christy at the DOT at (515) 239-1333 and she will send you another copy.

Sincerely,

Janet L. Nord  
Project Director

**APPENDIX H. FOLLOW-UP LETTER #1**



IOWA STATE  
UNIVERSITY

College of Education  
Professional Studies  
N243 Lagomarcino Hall  
Ames, Iowa 50011

Telephone 515-294-4143

«DATA CLA»  
March 21, 1988

«name»  
«cost»  
«div»

Dear «sname»:

About three weeks ago I wrote to you requesting your views of the Employee Assistance Program which is available to Iowa Department of Transportation (DOT) employees. As of today we have not received your completed questionnaire.

Iowa State University is conducting this study with the approval of the state EAP director and the management of the DOT. We believe that supervisors' views of the EAP will be valuable in helping to improve the services provided by the EAP.

I am writing to you again because of the importance each questionnaire has to this study. At your earliest convenience, please complete the enclosed survey, staple it together, and mail it. The postage is provided on the back cover.

Your responses will be kept completely confidential. The identification number on the front cover of the questionnaire will only be used to indicate whether or not you have returned your survey. After your survey is returned, the number will be cut off. Your name will not be associated with results of the study and your responses will be combined with those of other supervisors and reported as statistical summaries only.

In case your questionnaire has been misplaced, a replacement is enclosed. Your cooperation is greatly appreciated.

Sincerely,

Janet L. Nord  
Project Director

**APPENDIX I. FOLLOW-UP LETTER #2**

**IOWA STATE  
UNIVERSITY**

Telephone 515-294-4143

**«DATA CLA»  
April 18, 1988****«name»  
«cost»  
«div»****Dear «sname»:**

I am writing to you about our study of supervisors' views of the Employee Assistance Program available to the Iowa Department of Transportation (DOT). We have not yet received your completed questionnaire.

The large numbers of questionnaires returned is very encouraging. But, whether we will be able to accurately describe the opinions of DOT supervisors on these important issues depends upon you and the others who have not yet responded. This is because past experiences suggest that those of you who have not yet sent in your questionnaire may hold quite different views than those who have returned their questionnaires.

Iowa State University is conducting this study with the approval of the state EAP director and the management of the DOT. We believe that supervisors' views of the EAP will be valuable in helping to improve the services provided by the EAP.

It is for these reasons that I am sending you this request. May I urge you to complete the enclosed survey, staple it together, and mail it as quickly as possible. The postage is provided on the back cover.

Your responses will be kept completely confidential. The identification number on the front cover of the questionnaire will only be used to indicate whether or not you have returned your survey. After your survey is returned, the number will be cut off. Your name will not be associated with results of the study and your responses will be combined with those of other supervisors and reported as statistical summaries only.

Your contribution to the success of this study is greatly appreciated.

Sincerely,

Janet L. Nord  
Project Director

## APPENDIX J. REPLACEMENT OF MISSING VALUES

Before a discussion of replacement of missing values is presented, it would seem appropriate to briefly mention the several survey questions which were exempted from replacement of missing values and to give the reasons for those exemptions. Questions which were exempted from replacement of missing values included the following for the following reasons given:

- (a) Questions 1 and 28 (see Appendix A) were dropped from the major portion of the data analyses because it was noticed that 32 supervisors had neglected to answer question 1 and that 30 supervisors had not answered question 28. It was decided that there were too many missing values on questions 1 and 28 to consider a replacement of means for missing values as valid.
- (b) There were several questions included in the survey which were not to be included in the data analyses, but served other purposes. Those questions were questions 6, 7, 8, 10, 12, 14, and 21. Consequently, it was not necessary to deal with the subject of missing values on those questions.

### Overview

Missing values for the supervisors in the two groups were replaced with numerical responses which would best approximate answers that those supervisors might have made. Subsets of data were organized by supervisor demographics and, for each supervisor with a missing value, the missing value was replaced with the mean response on that particular question among supervisors from the demographic subset from which the supervisor with the missing value belonged.

### Construction of Demographic Subsets

The demographics used to create the subsets of supervisors included:

- (a) gender (see question 21)
- (b) age (see question 22)
- (c) level of supervision (question 23)
- (d) highest level of education completed (question 32)

For purposes of creating means for replacement of missing values, the demographic categories had to be compressed because it was found that some particular combinations of demographics yielded only one or two supervisors per combination and that those supervisors themselves had missing values on some of the questions in the survey. The demographic categories were compressed into categories as follows:

- (a) ages 25 to 50 (age was question 22)
- (b) ages 51 to 70 (age was question 22)
- (c) education consisting of high school diploma or less (responses #1 and #2 to question 32)
- (d) education consisting of three or more years beyond high school, two years college, vocational, or technical training (A.A. degree or other two year degree), or fewer than two years college, vocational, or technical training (responses #3-#5 to question 32)
- (e) education consisting of B.S. or B.A. degree, some graduate classes, or Master's degree or above (responses #6-#8 to question 32)

### **Replacement of Missing Values for Demographic Variables used in Constructing Demographic Subsets**

Because the four variables of gender, age, level of supervision, and highest level of education completed were used to create categories of supervisors to replace missing values, it was not possible to use the same computer program to replace missing values on those particular four variables. Missing values, at the following frequencies indicated, on those four variables of gender, age, level of supervision, and highest level of education completed were replaced with the following values for the following reasons given:

- (a) the 3 missing values for gender (question 21 in the survey in Appendix A) were replaced with a response of \* 1 (male) because the majority of supervisors (89.3%) were male
- (b) the 5 missing values for age (question 22 in the survey in Appendix A) were replaced with the value of 50 because that was the median value for age
- (c) the 3 missing values for supervisor level (question 23 in the survey in Appendix A) were replaced with the value of 1 (first line supervisor) because that was the most frequent response (71% of the supervisors on interest were first line supervisors)
- (d) the 6 missing values for education (question 32 in the survey in Appendix A) were replaced with the value of 3 (fewer than two years college, vocational, or technical training) because that was the median.

### **Other Questions Exempted from Replacement with Mean Values**

In addition to the four variables of gender, age, level of supervision, and highest level of education completed, special procedures were needed to deal with missing values for questions 9, 10, 11, 24, 25, 26, 27, 29, and 30 (see Appendix A). For those nine questions it was not logical to replace missing values with a mean response from the demographic subsets. When questions 9, 10, 11, and 24 are examined (see Appendix A) it is obvious why a mean replacement value would be inappropriate. Questions 25-27 and 29-30 had large standard deviations so it was thought that replacement with the median would be more appropriate than the mean. Missing values for questions 9, 10, 11, 24, 25, 26, 27, 29, and 30 at the following frequencies indicated, were replaced with the following values for the following reasons given:

- (a) the 26 missing values for question 9, the 26 missing values for question 10, and the 246 missing values for question 11 were given a numeric value different than any of the possible responses to those questions in order that the missing values could remain set apart from all other responses to the question when it was later recoded in a binary format prior to data analyses (binary recoding of those questions is discussed in detail in a subsequent section of the Results section of the present paper).
- (b) the 5 missing values for question 24 (occupational category of the majority of employees supervised) were replaced with the value of 3 (blue collar) because the highest percent of supervisors had responded with a value of 3

- (c) the 2 missing values for question 25 (number of years in present position) were replaced with the value of 8 because that value was the approximate median
- (d) the 4 missing values for question 26 (number of years in a supervisory role with the DOT) were replaced with the value of 12 because that was the approximate median
- (e) the 2 missing values for question 27 (number of years with the DOT) were replaced with the value of 23 because that was the approximate median
- (e) the 6 missing values for question 29 (number of male employees supervised) were replaced with the value of 7 because that was the approximate median
- (f) the 6 missing values for question 30 (number of female employees supervised) were replaced with the value of 2 because that was the approximate median.

#### Extent of Missing Values

The extent of missing values is examined in the following discussion in order to consider the possible impact on results derived from the data analyses. Missing values occurred for 3% or 12 out of the 358 supervisors in the two groups. It is helpful to examine the number of missing items per supervisor as follows (all survey items were included):

- (a) 6 supervisors were missing 1 value
- (b) 2 supervisors were missing 2 values
- (c) 3 supervisors were missing 3 values
- (d) 1 supervisor was missing 4 values



Questions and responses which were found to be the first 8 predictor variables in the forced discriminant analysis program are listed as follows with the number of missing values on each predictor variable indicated:

- (a) Question 2c: 4
- (b) Question 2f: 3
- (c) Question 5b: 2
- (d) Questions 11 and 15: 4
- (d) Question 16A: 2
- (e) Question 20e: 2
- (f) Question 23: 3
- (g) Question 24: 5

**APPENDIX K. RECODING OF SELECTED VARIABLES**

Two questions were coded in a binary format so that each possible response to the question could be used as a separate variable in the data analyses. For example, responses to question 24 (Q24), the occupational category of the majority of employees supervised, were recoded so that each of the six responses became unique. The responses to question 24 were recoded as follows:

- (a) response 1, clerical, was recoded P1
- (b) response 2, technical, was recoded P2
- (c) response 3, blue collar, was recoded P3
- (d) response 4, security, was recoded P4
- (e) response 5, professional, was recoded P5
- (f) response 6, management, was recoded P6

The other question which was recoded in a binary format was question 10 (Q10) which asked supervisors to indicate if they had ever worked at the same level with the subordinate most recently referred or noticed to have a problem. The responses to Q10 (and Q14 which was compressed into Q10) were recoded as follows:

- (a) a missing response was recoded as W1
- (b) response 1, no, was recoded as W2
- (c) response 2, yes, was recoded as W3.

Questions 9, 11, 16a, 16b, 16c, 23, 29, 30, and 32 had some of their response categories compressed to make best use of the binary coding of those variables. Specifically:

Question 9 (Q9) and Question 13 (Q13), amount socialized with subordinate most recently referred or noticed to have a problem, was recoded as follows:

- (a) response 0, never, was recoded as SOC1
- (b) the four following responses to Q9 were recoded as the same variable and named SOC2
  - 1. response 1, less than once a month was recoded as SOC2
  - 2. response 2, once a month, was recoded as SOC2
  - 3. response 3, two or three times a month, was recoded as SOC2
  - 4. response 4, four more times per month, was recoded as SOC2
- (c) a missing response was recoded as SOC3.

Question 11 (Q11), amount of time worked at same level with subordinate most recently referred or noticed to have a problem, was recoded as follows:

- (a) a missing response, supervisors who had not worked at the same level with the subordinate most recently referred or noticed to have a problem, was recoded as TIMEW1
- (b) the four following responses were recoded as the same variable and named TIMEW2
  - 1. response 1, less than once a month was recoded as TIMEW2
  - 2. response 2, six months to less than one year, was recoded as TIMEW2
  - 3. response 3, one year to less than two years, was recoded as TIMEW2
  - 4. response 4, two years or more, was recoded as TIMEW2

**Question 16A (Q16A)**, supervisor perception of degree of management support for the EAP, was recoded as follows:

- (a) the three following responses to Q16A were recoded as the same variable and named M1:
  - 1. responses 1, 2, and 3, which indicated supervisor belief that the management was unsupportive of the EAP, were recoded as M1
- (b) response 4, which indicated supervisor belief that the management was supportive of the EAP, was recoded as M2.
- (c) response 5, which indicated supervisor belief that the management was very supportive of the EAP was recoded as M3.
- (d) response 6, indicating supervisors did not know how much support the management gave the EAP, was recoded as M4

**Question 16B (Q16B)**, supervisor perception of degree of union support for the EAP, was recoded as follows:

- (a) the three following responses to Q16B were recoded as the same variable and named U1:
  - 1. responses 1, 2, and 3, which indicated supervisor belief that the union was unsupportive of the EAP, were recoded as U1
- (b) response 4, which indicated supervisor belief that the union was supportive of the EAP, was recoded as U2.
- (c) response 5, which indicated supervisor belief that the union was very supportive of the EAP was recoded as U3.
- (d) response 6, indicating supervisors did not know how much support the union gave the EAP, was recoded as U4

Question 16C (Q16C), supervisor perception of degree of support for the EAP by their own immediate supervisor, was recoded as follows:

(a) the three following responses to Q16C were recoded as the same variable and named S1:

1. responses 1, 2, and 3, which indicated supervisor belief that their own immediate supervisor was unsupportive of the EAP, were recoded as S1

(b) response 4, which indicated supervisor belief that their own immediate supervisor was supportive of the EAP, was recoded as S2.

(c) response 5, which indicated supervisor belief that their own immediate supervisor was very supportive of the EAP was recoded as S3.

(d) response 6, indicating supervisors did not know how much support their own immediate supervisor gave the EAP, was recoded as S4

Question 23 (Q23), level of supervisor, was recoded as follows:

(a) response 1, first line supervisor, was recoded as L1

(b) the two following responses were recoded as the same variable and named L2

1. response 2, middle manage was recoded as L2

2. response 3, upper manager, was recoded as L2

Question 29 (Q29), number of male employees supervised, was recoded as follows:

(a) response 0, 0 male employees supervised, was recoded as

MALE1

(b) responses 1 - 5, 1 to 5 male employees supervised, was recoded as  
MALE2

(c) responses 6 - 9, 6 to 9 male employees supervised, was recoded as  
MALE3

(d) responses 10 and higher, 10 or more male employees supervised, was  
recoded as MALE4

Question 30 (Q30), number of female employees supervised, was recoded as  
follows:

(a) response 0, 0 female employees supervised, was recoded as  
FEMALE1

(b) response 1, 1 female employee supervised, was recoded as  
FEMALE2

(c) responses 2 - 3, 2 to 3 female employees supervised, was recoded as  
FEMALE3

(d) responses 4 and higher, 4 or more female employees supervised, was  
recoded as FEMALE4

Question 32 (Q32), highest level of education completed by supervisor, was  
recoded as follows:

(a) the two following responses were recoded as the same variable and  
named E1:

1. response 1, less than four years of high school, was recoded  
as E1

2. response 2, high school diploma, was recoded as E1

(b) the three following responses were recoded as the same variable and  
named E2:

1. response 3, fewer than two years college, vocational, or technical training of high school, was recoded as E2
2. response 4, two years college, vocational, or technical training, was recoded as E2
3. response 5, three or more years of school beyond high school but no degree, was recoded as E2

(c) the three following responses were recoded as the same variable and named E3:

1. response 6, B. S. or B. A. degree, was recoded as E3
2. response 7, some graduate classes, was recoded as E3
3. response 8, Master's degree or above, was recoded as E3