Selecting Client Characteristics and Their Relationship to Successful Outcome in a Vocational Rehabilitation Program

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SELECTED CLIENT CHARACTERISTICS AND THEIR RELATIONSHIP TO SUCCESSFUL OUTCOME IN A VOCATIONAL REHABILITATION PROGRAM

By

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THESIS

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INTRODUCTION

Vocational Rehabilitation (VR) had its beginning in 1918, when Congress granted to the Federal Board of Vocational Education the power to provide for the training of "any disabled veteran who was unable to carry on a gainful occupation, to resume his former occupation, or to enter upon some other occupation, or having resumed or entered upon such occupation was unable to continue the same successfully." (U.S. Department of Health, Education, and Welfare, 1972). Called the Soldiers Rehabilitation Act, this measure made clear the basic goals of vocational rehabilitation. In 1943, a milestone year, services were extended to all disabled individuals who met the basic criteria of (a) having a disability (physical, emotional, or mental) which (b) poses a substantial handicap to employment, and (c) for whom a reasonable expectation exists that upon receiving services the individual can again (or for the first time) engage in gainful employment.

These criteria are basic for the disabled individual to be accepted into the VR program. The rehabilitation counselor is charged with the responsibility of making eligibility decisions as to the feasibility of each disabled individual successfully completing the rehabilitation program or not. Yearly federal/state funding for the continuation of the program is reflected by the quantity of successfully closed cases (a "client" who returns to goes to work for 60 days or more).
Adequately selecting those individuals who will be most likely to complete a program of rehabilitation and to be successfully placed in a suitable vocation constitutes an element of prediction on the part of the VR counselor. Throughout each step in the rehabilitation process, the VR counselor continually assesses the potential of his/her client becoming successfully employed. Early identification of the potential nonrehabilitant not only saves time and effort on the part of the applicant but a significant amount of money for the VR agency. It is apparent that it would be beneficial for all concerned if the VR counselor could successfully predict the rehabilitant/nonrehabilitant at the time of application into the program.

Client characteristics such as age, sex, marital status, amount of education completed, number of dependents, prior work history, referral source, race, and the provision of public assistance can readily be identified early in the VR process. These characteristics have been used in statistical prediction studies by several researchers. A review of the literature indicates that the characteristic of age has been studied more than any other variable in its effect on successful outcome.

**Age**

Lesser and Darling (1953) followed-up a group of 267 clients of the Institute for the Crippled and Disabled whose cases had been closed in 1948 and 1949. Using gainful employment as their criterion for vocational achievement, they analyzed their data "to dissect the individual factors affecting vocational achievement . . . (p. 73)." As a result they found that between the ages of 25 and 59 years, age
appeared to have no influence on employment. With a group of 100 borderline retarded, non-institutionalized clients of VR, Mitra (1976) also found age to have no bearing on successful employment. The age range included in this sample was between the ages of 21 and 61 years. Subjects were from poverty-stricken areas of the inner city of Baltimore and are not considered to be representative of typical clients in a VR counselor's caseload.

Ayer, Thoreson, and Butler (1966) approached the problem of prediction of successful rehabilitation using a combination of selected demographic and personality variables, the latter as measured by the Minnesota Multiphasic Personality Inventory (MMPI). Their sample included 79 cases from the files of the Wisconsin Division of Vocational Rehabilitation (DVR) which they judged to be representative of all cases referred for services, with the exception that the percentage of emotionally ill clients was disproportionate. Three regression equations were developed with the purpose of predicting three criteria: occupational level, upward mobility, and closure status. Closure status was defined as being "descriptive of those clients who, at the time the case was closed, were either unemployed and/or unsuccessfully trained (p. 633)." Intercorrelation of all the variables revealed that age at time of application negatively correlated with closure status to a statistically significant degree.

Working with the files of the Georgia DVR, Smith and Crisler (1985) randomly selected 35 former chronic low back pain (CLBP) clients whose cases had been closed as rehabilitated between the years of 1979 and 1982, as well as 35 nonrehabilitated CLBP clients in the
same period. Their independent variables were characteristics on which information is routinely gathered on the DVR intake form (state application) at the time of intake processing of every client. The variables of age, marital status, length of time on the job where injured, and time from injury to referral were not significantly related to rehabilitation outcome. It is important to note that these clients were inclusive of being workers' compensation recipients and take special consideration in the VR program.

Looking at clients who were concurrently attending the Minnesota Rehabilitation Center (MRC), Salomone (1972) interviewed staff members of VR and MRC and instructed them to rate clients on their motivation to complete both programs as an indication of successful outcome. After the "motivated" clients had been identified, he compared demographic variables (age included) with the "motivated" and "unmotivated" and found no significant relationship.

An interesting study by Heilbrun and Jordan (1968) on the influence of age on successful rehabilitation stands in contrast to the balance of other studies. The investigators were concerned with clients of the Atlanta Employment Evaluation and Service Center. These clients, in a large majority, "represented problem referrals from other rehabilitation and social welfare agencies in the state, were from lower socioeconomic environments, and fell within grossly normal physical and mental ranges (p. 214)." A representative sample of 185 clients of the agency was selected for study, and the relationship of a set of demographic variables to successful or unsuccessful outcome was measured. Successful outcome involved completion of the
program at the Center as well as maintenance of a job for at least the six month follow-up period. Unsuccessful outcome included both those clients who completed the program and were not employed at follow-up and those who did not complete the program and were unemployed at follow-up. Totals of 56 and 129 clients were included in the successful and unsuccessful groups respectively. The surprising finding was a positive correlation between age and outcome, the tendency being for the successful clients to be older (32.4 years) than unsuccessful clients (28.8 years). More surprising still 40-49 year olds included 21% of the successful clients and only 7% of the unsuccessful. The authors suggested that the effects of race likely moderated the relationship between age and outcome although the finding could also be interpreted as related to the mission and clientele of the Center.

In a study by Tseng and Zerega (1976), significant mean differences were found in that the successfully closed cases were older (mean age 38.5), stayed in application status for fewer months, had more dependents, had more education, and had higher weekly earnings at referral. This study was based on form R-300, "Case Service Report," recording of which is required for each of the clients of vocational rehabilitation.

Turning now to studies finding age and successful outcome to be inversely related, DeMann (1963) found rehabilitants were younger, as a group, than the nonrehabilitants. Also, a greater proportion of rehabilitants were young (less than age 30) at the time of onset of disability. The sample included closed cases obtained from the files of VR in St. Paul, Minnesota between the years of 1953 and 1959.
Schletzer et al. (1958) also found that clients younger at the time of disablement tended to be more successfully rehabilitated. Interview data on a statewide sample of 255 physically handicapped individuals of labor force age were analyzed with particular reference to employment problems of the handicapped.

Also using the interview for gathering data, Weiner (1964) compared hospitalized tuberculosis patients who succeeded in returning to work with those who did not. The unemployed group was older (a larger percentage was over 45) than the employed group. This restricted group of patients consisted of 98 males discharged with medical approval for employment, and entered the labor market. Fifty-eight of the men returned to their former employment.

Knowles (1969) examined a restricted group also which consisted of the legally blind. Information was collected from 245 successful case files and 210 unsuccessful files in an effort to "look backward" and determine which relationships and differences in the two groups led to closure outcome. It appeared that the members of the successful group tended to be younger, to have been blinded at an earlier age, and to have been blind proportionately longer than members of the unsuccessful group.

Kunce et al. (1974) believe that rehabilitation outcomes of blind clients can be predicted more accurately than outcomes of those with other disability types. Using a statistical procedure called reciprocal averaging, they assigned "weights" or points to personal characteristics so that a total score could be obtained. Clients under 35 years old were given the highest "weight" and those over 56 the
lowest "weight." Ninety-two percent of the clients with scores of 45 or higher were vocationally successful. The authors caution the use of these prediction scores for clients having disabilities other than blindness.

McPhee and Magleby (1960) compared demographic factors of rehabilitation clients who were considered substantially employed with those considered unsubstancially employed or minimally employed. Age was found to be an important factor in predicting success with the mean age for the substantially employed group being lower than the mean age for the minimally employed group.

The above findings with respect to the influence of age on successful rehabilitation have been diverse, and in some cases, diametrically opposed. If a relationship was found between age and successful outcome, groups generally consisted of special diagnostic and restricted cases.

**Sex**

Among those studies previously reviewed, Lesser and Darling (1953) found with reference to sex that "a considerably higher proportion of the men are gainfully employed as compared with the women. However, when proper correction is made for women seeking performance (work) only as housewives, there is no difference between the sexes in the amount of occupational achievement (p. 78)." DeMann (1963) in his study with ex-clients of the St. Paul District office of VR did not find that sex discriminated between the rehabilitants and nonrehabilitants. Ayer, Thoreson, and Butler (1966) in their study with Wisconsin DVR case histories found that sex was not significantly
related to closure status. Salomone (1972) similarly reported no relationship between closure status and sex in his research with Minnesota DVR clients. The investigation of Heilbrun and Jordan (1968) concerned itself, it will be recalled, with the socially disadvantaged referrals to the Atlanta Employment Evaluation and Service Center and was therefore classified with the studies of restricted samples, specifically the "problem referrals." As consistent with above studies, Heilbrun and Jordan found that "rehabilitation outcome bore no relationship to male-female . . . status (p. 214)." Knowles' (1969) study with 455 legally blind clients revealed no significant differences in males and females when compared with successful/nonsuccessful closure. Mitra (1976) found little relationship of vocational success with demographic characteristics, which included the variable sex, in his study of black ghetto retardates. Schletzer et al. (1958) investigated the relationship between client characteristics and employment status in a disabled population with sex as one of the variables and found that a significantly larger proportion of the men were employed than was the case for women.

On the other hand, of the variables studied by Neff (1975) in relation to the vocational success of his "problem referrals" at Chicago Jewish Vocational Service, only sex was found to be a significant discriminator. According to whether his clients had worked at least 3/4 of the time from closure to follow-up, from 1/2 to 3/4 of the time, or less than 1/2 of the time, Neff rated their employment success as "High," "Moderate," or "Low." Those who had not been employed at all in competitive employment were rated "None." A
significantly higher percentage of the males were in the "High" employment category and significantly smaller percentages in the "Moderate" and "Low" categories. More men than women, however, were totally employed. Hall (1972) similarly reported more males being successfully employed than women in his examination of 3,571 closed cases from DVR in Minnesota.

Looking at successfully closed cases of one state VR agency during fiscal years 1977 through 1980, Growick and McMahon (1983) investigated how older clients differed from other age groups in personal characteristics. Results indicated that the older (45 years of age or more) successful client tended to be female (53%); the middle-aged (between 30 and 44 years of age) successful client tended to be male (58%); and the younger (29 years of age or less) successful client also tended to be male (62%). Successful and nonsuccessful closures were scrutinized by VR counselors in Georgia, randomly selecting chronic low back pain individuals exclusively (Smith and Crisler, 1985). The variable of sex was significantly related to successful outcome. The two groups were heavily balanced in favor of males.

It seems from the foregoing that while 7 of the studies found no relationship between sex and rehabilitation outcome, almost as many (5 of them) found a relationship. Additionally, among those studies which reported the finding of significant relationships, at least two have confessed that the criterion of success may be differently defined for many women who were not seeking full-time employment as their rehabilitation objective. The literature, then, is inconclusive with respect to the relationship between sex of the client and
rehabilitation outcome.

**Education**

Among the more heterogeneous population studies were those composed of disabilities usual to VR caseloads. Reporting on a sample of such cases, McPhee and Magleby (1960) determined that a significantly larger percentage of high school graduates were in their substantially employed group as were those who had more than 10 years of education when they applied for services. DeMann (1963) found that education was a discriminating variable in his predictive study of counseling outcome with VR clients, a greater proportion of high school graduates being among the rehabilitants. Hall (1972) also found that 10 or more years of education discriminated rehabilitants from nonrehabilitants. In contrast, Ayer, Thoreson, and Butler (1966) observed that educational level was significantly correlated with occupational level but not with case closure status. Similarly, Schletzer et al. (1958) conducted a follow-up study of placement success with the physically handicapped and obtained data on 91 individuals of whom 48 were rehabilitated ex-clients of DVR. Among the latter group, it was found that the "level of education is not related to employment status (defined as employment versus unemployment)" (p. 7).

Looking at homogeneous samples, Lesser and Darlings' (1953) work consisted of former clients of the Institute for the Crippled and Disabled having orthopedic and neurological disabilities. In this group, those individuals with more than a grade school education "have a less than average chance of being employed" (p. 78) while those with high
school or better enjoyed more than average probability of employment. In a list of factors compensatory to disability, the authors proposed that at least some high school education was requisite. Overlapping this study to some extent was that of Smith and Crisler (1985) of clients with CLBP. They found that the nonrehabilitated group had significantly less formal education than the rehabilitated group. The investigators point out that the level of education becomes important in view of the common functional limitations associated with CLBP; inability to sit, stand, lift, walk, bend and stoop in the amount necessary for competitive activity is a substantial employment barrier for less educated persons. Knowles (1969) reports in his study of the legally blind that the members of the successful group had, on the average, significantly more years of education than the unsuccessful group. The levels of education were found to be highly correlated with higher levels of vocational classification after rehabilitation.

Gelfand et al. (1960) reported on a study conducted by the Cardiac Work Classification Unit of the Heart Association of Southeastern Pennsylvania. Of an original population of 665 cardiac patients evaluated by the Unit between 1952 and 1955, 117 were selected for comparative purposes, the attempt being made to include as many as possible of those who had been classified as unsuccessfully vocationally adjusted. Thirty-eight of these patients were thus included in the study along with 79 who were classified as successfully vocationally adjusted. Although not stated, it is assumed that these patients were predominately or perhaps entirely male. The purpose of the study was a detailed comparison of the two criterion groups on a number of
medical, social, vocational, and psychiatric factors. Follow-up inter-
views were completed by the cardiologist, social worker, vocational
counselor, and psychiatrist on the staff, and the results integrated
in a meeting of the rehabilitation team. Education was not found to be
related to the patient's ultimate status as successfully or unsuccess-
fully vocationally adjusted.

Two studies were directed to populations of "problem referrals." Neff (1975) followed-up graduates of the Vocational Adjustment Center
of the Jewish Vocational Service in Chicago and found that education
was not related to employment success. Comparably, Heilbrun and
Jordan (1969) found education to be unrelated to success with their
clients of the Atlanta Employment and Evaluation Center.

Weiner (1964), it will be recalled, worked with male patients
hospitalized for tuberculosis. He found that educational level did not
discriminate between the group that successfully returned to work and
the group that was unsuccessful.

Among the studies just cited, there is an even division (6 to 6)
between those which have found significant correlation between educa-
tion and successful rehabilitation and those which have observed no
relationship. It must be concluded that the relationship of educational
level to employment of the disabled is still not clear.

Race

Among those studies previously reviewed, DeMann (1963) did not
find race to discriminate between the rehabilitated and nonrehabilita-
ted groups in his study. Similary, Heilbrun and Jordan (1969) did not
establish a relationship between race and successful outcome in their
study of social welfare referrals. Weiner (1964), it will be recalled, compared hospitalized male tuberculosis patients who succeeded in returning to work with those who did not on a number of characteristics. Results indicated that whites were more likely to be employed than non-whites.

The relationship of demographic variables to success in VR of state mental hospital patients was investigated by Aiduk and Longmeyer (1972). None of the demographic variables studied was revealed as a significant predictor of agency closure status. However, a significant interaction was found among the race, education and closure status variables indicating that black clients were more likely to be rehabilitated if they had completed a greater number of years of education. Reporting on a specialty caseload of the hearing-impaired, Lafitte (1978) found race to be one of the important variables related to rehabilitation outcome. The results seem to indicate that being black, as well as Puerto Rican increased the probability for not being rehabilitated.

Tosi and Vesotsky (1970) investigated the relationship between disabled clients and disadvantaged-disabled clients with respect to their relative frequency of falling into a "successful" or "unsuccessful" category. Certain criteria defined by the Office of Equal Opportunity were given a disadvantaged-disabled status. Criteria defining disadvantaged-disabled subjects included (a) is dependent upon public assistance and (b) has a disability; physical, mental, or emotional, or has any two of the following characteristics: (a) has not completed more than the 11th grade; (b) is Negro, American Indian, Mexican-
American or Puerto Rican; (c) is currently residing or has within the last two years resided in a mental health facility; or has been sentenced to a prison, jail or correctional facility; and (d) is a member of a family whose current annual gross income (for self-employment use net income) is less than a specified minimum required by the Office of Equal Opportunity. The disabled subjects evidenced a greater success rate than the disadvantaged-disabled subjects.

An interesting study by Tseng and Zerega (1976) reported that applicants who were accepted for VR services were statistically different from those who were not accepted for services. More blacks were accepted for VR services than whites. However, race did not significantly relate to successful closure status.

These studies which have looked at race and its relationship to successful outcome remain inconclusive, as studies of the previous demographic variables have demonstrated.

**Marital Status and Number of Dependents**

Again referring to studies already reviewed, DeMann (1963) found no significant relationship between successful outcome and marital status or number of dependents. Similarly, Smith and Crisler (1985) and Heilbrun and Jordan (1969) also found no significant relationship between the successful/nonsuccessful and marital status in their studies of CLBP individuals and "problem referrals," respectively. In contrast, McPhee and Magleby (1960) ascertained that, of the substantially employed group, more were married and had at least one dependent. Schletzer et al. (1958) found married clients to have the highest rate of employment and the employment rate increased as the
number of dependents increased up to four. The majority of subjects in Weiner's (1964) study were married men who became employed and had one or more dependents.

Selling and Feriden (1969) looked at disabled public assistance clients who received VR in the state of New Jersey. Relationships observed between different variables and successful rehabilitation in the experimental group were as follows: (a) of those receiving AFDC (Aid to Families with Dependent Children), 33% were rehabilitated; (b) marital status was not a factor affecting rehabilitation; and (c) transportation difficulties were the main obstacle to employment.

In Growick and McMahon's (1983) study of "older," "middle-aged," and "younger" rehabilitants, the "older" and "middle-aged" groups tended to be married; while the "younger" group was more representative of single males but it is noted that these males were also representative or more emotional/behavioral disorders which are not typical of a general VR caseload.

Work History

The bulk of the literature reviewed studying the effects of prior work history and successful outcome in rehabilitation include special diagnostic groups. The number of jobs held in the past five years by the male tuberculosis patients had a significant impact on the ability of finding employment in the study conducted by Weiner (1964). Looking at blind VR clients exclusively, Knowles (1969) found the successful clients to have a higher level of prior work experience than the unsuccessful clients. Looking at the hearing-impaired, Lafitte (1978) also discovered previous work histories to be indicators of successful
Selling and Feriden (1969) compared recipients of AFDC and Social Security benefits. Results indicated that the sem-skilled and skilled clients were more likely to become employed than those with no work experience or who were virtually unskilled. In contrast, Neff (1975) did not find work experience to relate significantly to vocational success. He interviewed "graduates" of the Vocational Adjustment Center who were retarded, epileptic, or had emotional problems. It should be understood that this particular client population experienced great difficulty in procuring or retaining jobs, otherwise they would not have been attending a work adjustment center.

Reviewing general caseloads of VR, Schletzer et al. (1958) found the median length of time a client was on his/her present or last job to be over four years which indicated prior job stability in the sample. DeMann (1963) obtained a significant relationship between prior work history and successful closure in his investigation of VR cases in Minnesota. It is the general consensus, therefore, that prior work history is a good indicator of success in vocational rehabilitation.

Source of Referral

Only two studies were found which considered the referral source of a VR client to be included in their investigation of successful and unsuccessful outcome. Recalling Growick and McMahon's (1983) investigation of the characteristics of older successful clients, the "older" successful client tended to be self-referred; the "middle-aged" successful client tended to be referred by a public agency, and the "younger" successful client tended to be referred by an educational
institution. Aiduk and Longmeyer (1972) found no significant difference between successful and unsuccessful clients in a state mental hospital when looking at the variable of referral source.

Public Assistance

Selling and Feriden (1969) investigated public assistance recipients exclusively. These included those who received AFDC and Social Security benefits. Of those receiving AFDC, 33% became rehabilitated; of those receiving Social Security benefits due to a disabling condition, 23% were rehabilitated. DeMann (1963) found proportionately more nonrehabilitants to report having public or private relief as the primary source of income. The disadvantaged-disabled group investigated by Tosi and Vesotsky (1970) also received public assistance as a primary source of income. Of a total of 52 disadvantaged-disabled clients, 16 were successful and 36 were failures.

In Smith and Crisler's (1985) study, none of the persons in the sample who were rehabilitated were receiving Social Security Disability Income (SSDI) when their cases were closed, whereas 11 in the nonrehabilitated group were receiving SSDI. Using reciprocal averaging, Kunce et al. (1974) concluded that a client who had the highest caseload feasibility was not an applicant of SSDI. It appears from the above studies that recipients of public assistance are more likely to become nonrehabilitants than those not receiving or applying for public assistance.

Motivation

Very few studies have considered motivation as a factor related to employment success. Nagi (1972) found that individuals with a
higher degree of motivation toward returning to work correlated with a greater frequency of successful rehabilitation among the clients he surveyed. Nagi and Hadley (1972) found that motivation to return to work was influenced by a decrease in family income subsequent to a disability, providing that the disability was not classified "severe." Thus, for a mildly or moderately disabled worker whose disability insurance or other forms of public assistance was less than his/her former wages, there was more motivation to return to work. For the severely disabled, however, there was not found to be any relationship between loss of income and motivation to return to work. No explanation was suggested for this phenomenon.

Poor (1975) admitted that client motivation does play a significant role in the client's vocational rehabilitation outcome although there exists no operational definition for the term "motivation." Poor's reaction to the phenomenon of motivation is best stated thusly:

Motivation is indeed difficult to define and measure but few would argue its reality and the fact that motivation is often the major ingredient in determining vocational outcome for spinal cord injured persons. Henry Viscardi, President of Abilities, Inc., a business firm that employs the handicapped workers, has asked, 'Does the client really want to work? If he doesn't, his disability is in his attitude, not his physical qualifications.' (p. 270).

Cook (1977) suggested that attitudes toward work have a significant impact on rehabilitation outcomes. Highly correlated with work attitudes, according to Cook, are marital status, dependency status, and employment history. Fantz (1962) focused on the "motivation-hygiene" theory of Herzberg and found that patients who are "growth" oriented (need for autonomy, need for information and self-understanding, and the need for creativity) are more apt to improve in a
rehabilitation setting.

Cleland and Swartz (1969) contended that work deprivation serves as a strong motivator to work. They substituted a hedonic regimen for work with 15 chronically institutionalized male retardates for 13 days. The regimen consisted of games, contests with prizes, and catered food service based on each patients' pre-experiment preferences. The dependent measures used in the study were observer ratings, tape recordings, attendant evaluations, supervisor evaluations, and interview data. Results from most of the dependent measures were in the expected direction. For example, spontaneous comments by the patients categorized as either work-oriented or boredom responses had substantially increased by the end of the 13-day experimental period, while hedonically-related comments had shown a marked decline.

Selling and Feriden (1969) had hoped to evaluate motivation in their study of disadvantaged-disabled public assistance clients, but did not succeed, nor come up with a good definition of what constitutes motivation in this type of client. They finalized that it was not only the clients' motivation that led to success, but also motivation of the team members, doctors, and auxiliary personnel as well.

Two hundred eighty counselors were interviewed in the study by Thoreson et al. (1969). Client lack of motivation for rehabilitation was ranked #1 as the major problem associated with characteristics of clients. Counselors' remarks included the following: (a) The client is receiving some form of financial aid which he feels rehabilitation will disrupt. (b) The client has unrealistic vocational goals, and (c) The client has undesirable personal characteristics. Joseph (1956)
contends that "the adult's personality and behavior patterns are well established, and his reaction and his illness depend upon what kind of person he is, how he handles stress and what his illness means to him" (p. 16). She found that attitudes toward work were frequent causes of lack of motivation among vocational rehabilitation clients.

Studies have been completed that support the view that motivation for rehabilitation is not a unitary concept. For example, a factor analytical study by Nadler (1957) defined a number of behavioral patterns in a sheltered workshop. He found that job performance was positively related to the drive to work, negatively related to low intelligence and poor reality orientation, and unrelated to three other patterns.

In Larsen's (1981) study of 59 mentally disabled clients; 71 staff members were interviewed. Their conclusions were that motivation to succeed in rehabilitation increased as the inter-relationships with staff increased and the feared loss of social security benefits decreased a client's motivation to become successfully rehabilitated.

Salomone (1972) looked at client motivation and rehabilitation counseling outcome. One hundred eighteen cases which had been closed by DVR in Minneapolis, Minnesota and also a rehabilitation center were considered for rating client motivation. A team discussion (a vocational counselor, work evaluator, social worker, psychologist, and conference coordinator) resulted in a diagnostic conference report which generally included a statement concerning the clients' motivation for the rehabilitation program and work. Each report was coded and all identifying information was removed. Typically, those persons
motivated for rehabilitation services were described as having good physical appearance and self care, handling interviews well, being highly motivated to work, considering realistic kinds of work, and having average intelligence. Those clients not motivated for rehabilitation services typically were viewed as unemployed because of a desire not to work, and they participated in the program so as not to jeopardize workers' compensation status.

Dickey (1959), Patterson (1964), and Sinick (1961) all contend that there is no such thing as a lack of or absence of motivation. "To be alive is to be motivated, to be unmotivated is to be dead. Thus we cannot say that a client is unmotivated." (Patterson, p. 25). Dickey, in summarizing the Cleveland Symposium on Behavioral Research in Rehabilitation, noting that while perhaps no more difficult problem exists for the rehabilitation worker than how to deal with the so-called non-motivated patient points out that "the label 'non-motivated client' attached to such a patient is not only erroneous but is not likely to lead into the kinds of behavioral or conceptual analyses which would increase our understanding of the problem." Patterson states that the client does have goals and objectives, although they may not be the same which the counselor has for him/her. Sinick lists some of the reasons that clients may seem to appear to be unmotivated: involuntary or inappropriate referral; ignorance of agency's services; impersonal intake process; fear of monetary loss; fear of losing time, independence, or dependence; ambivalence; decision-making difficulties; and wanting to be like others.
In view of the findings discussed above this study is designed to investigate the relationship of selected client characteristics in order to predict successful closure of a VR client. Research has been inconclusive so far in this area of interest. No study has been found which has used the combination of the following variables in prediction research of successful VR clients: age, sex, education, race, marital status and number of dependents, prior work history, referral source, public assistance, and motivation.
METHOD

Subjects

A random selection of closed cases from the files of DVR in Orange County, Florida, fiscal year 1986-1987 was obtained for this study. Unsuccessfully closed cases were chosen first and 100 usable cases were found. The criterion for a case to be closed as nonrehabilitated in this study included one of the following: (a) client left the area or was unable to be located or contacted; (b) client declined further rehabilitation services; (c) client failed to cooperate; or (d) "other" (e.g., client did not keep appointments with VR counselor, doctors, work evaluation team, etc.). A frequency count was then made of the type of disabilities of these cases. Some examples of disabilities are: hearing-impaired, orthopedic impairments, cardiac and circulatory system conditions, speech impairments, respiratory system conditions, and mental/emotional disorders. A greater percentage (52%) of clients with mental/emotional disorders were found in this population sample. The remaining 48% of the clients had a combination of the physical disabilities.

Successfully closed cases were then matched to the unsuccessfully closed cases according to disability type as much as possible. (A successful client is one who has worked for 60 days or more). Eighty usable cases were found. Of these 80 cases, 49% were clients with mental/emotional disorders and the remaining 51% had a combination of the physical disabilities.
Procedure

In order to insure confidentiality of case information, all data were collected by VR counselors. Closure status information was withheld from the VR counselor recording work history and motivation because these two variables have an element of subjectivity in their assessment. All variables were dichotomized and were given values of "0" or "1." "0" indicates the absence of the client characteristic and "1" indicates the presence of the characteristic. The primary document used for data collection was the application form which each client fills out at the time of the initial intake. This form contains biographical information, past work history, type of disability, and various questions such as:

(a) Who sent you to vocational rehabilitation?
(b) What is the best job you have ever had?
(c) What keeps you from working?
(d) Did you become disabled while working?
(e) What do you want this agency to do for you?

Race is not recorded on this document, so cases had to be thoroughly researched to find this variable. The dependent variable in this study is successful closure, or rehabilitation of a VR client. The independent variables were as follow and were recorded thusly:

<table>
<thead>
<tr>
<th></th>
<th>&quot;0&quot;</th>
<th>&quot;1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td>40 years of age or over</td>
<td>Under 40 years of age</td>
</tr>
<tr>
<td>Sex:</td>
<td>Female</td>
<td>Male</td>
</tr>
<tr>
<td>Education:</td>
<td>Less than 12 years</td>
<td>High School or GED</td>
</tr>
</tbody>
</table>
Race: | "0" | Non-white | "1" | White
---|---|---|---|---
Marital Status: | Single, divorced, widowed, separated | Married | One or more dependents | No dependents
Number of Dependents: | No dependents | One or more dependents | Good history* | Poor history*
Work History: | Poor history* | Good history* | All others** | Good***
Referral Source: | Public assistance referral** | All others** | Not receiving**** | Receiving****
Motivation: | Poor*** | Good*** | Not receiving**** | Receiving****
Public Assistance: | Receiving**** | Not receiving**** | Receiving**** | Not receiving****

Operational definitions of the above variables are as follows:
* A good work history was taken from Howard (1979), using the following criteria: The client (a) held one or more jobs in the past; (b) remained on at least one job for a year or more; and (c) had never been fired from a job. If any one or more of these criteria were violated, a "poor" work history was recorded. Part (d) of Howard's list was omitted because it was thought to be too stringent a measure of work history. This read as follows: "held no more than three different jobs in any one year, excluding part time jobs while a student."
** Public assistance includes AFDC, SSDI, SSI (Supplemental Security Income), and county welfare.
*** Motivation was measured as an indicator for the desire to work. On the state application blank for VR services, as mentioned earlier, the question is asked: "What do you want this agency to do for you?" If the applicant answered this question in such a way as it could be interpreted that he/she had a desire to go/return to work, the "good"
motivation was recorded. Experienced VR counselors have indicated that the following statements appear to be good indicators of motivation:

"help me so I can work"
"retraining"
"job placement"
"fix me so I can get a job"

If the applicant did not answer this question and left it blank or if any other statement was made which was not considered to be work related by the recorder, then "poor motivation" was recorded.

**** Same as referral source.

**Statistical Analyses**

Subjects were divided into two groups at the outset. Group A was designated as the Developmental Group - the group for which multiple regression equations were developed. Group B was designated as the Predictive Group for cross-validation purposes. Group A was composed of one-half of the subjects (50 nonrehabilitants and 40 rehabilitants). Group B consisted of the same division of subjects. However, following nonsignificant results of the multiple regression analysis, both of the groups were combined to maximize power.

Intercorrelations between each independent variable and the dependent variable were computed along with correlations of each independent variable with each other by the use of the Pearson correlation measure. Multiple linear regression analysis was then used to estimate the probability of a client successfully completing the VR program. The $F$ test was then performed to ascertain whether the multiple $R$ was significantly different from zero.
Chi-square was chosen additionally as a test statistic due to the nominal nature of the variables studied. The chi-square test of independence was conducted from 2X2 contingency tables of each independent variable with the dependent variable. This test determines if an actual difference exists between observed and expected values of each variable. All 180 subjects were also used in this analysis.
RESULTS

Table 1 shows the means and standard deviations of the dependent variable and the independent variables. Thus, the sample can be described as: 74% under the age of 40; 61% male; 17% married; 67% having a high school education or GED; 21% having one or more dependents; 51% having a good work history; 84% being referred to VR by any other source besides a public assistance agency; 67% with good motivation; 79% white; and 80% not receiving public assistance monies. Forty-four percent of the 180 subjects were successful closures.

Correlations between the predictor variables and the criterion appear in Table 2. Correlations were found to be significant at \( p \leq .05 \) for age and marital status (-.26); age and work history (-.28); age and referral source (.27); age and race (.23); marital status and number of dependents (.52); and number of dependents and referral source (-.27). None of the correlations between the client characteristics and the dependent variable of successful closure reached statistical significance.

Table 3 reveals that, in combination, the 10 independent variables produced a nonsignificant multiple regression correlation coefficient of \( R = .29 \), explaining only 8% (\( R^2 = .08 \)) of the variance in the dependent variable of successful rehabilitation (\( F (10, 169) = 1.53, p = .13 \)). That is, only 8% of the variance of successful closure is accounted for by the combination of the 10 selected client
characteristics. These results contrasted with a study by Worrall and Vandergoot (1980) which this author attempted to duplicate to some degree. These researchers assigned nonarbitrary weights to client characteristics and used the multiple regression model to predict high-risk clients. They used the individual regression coefficients as additive and incremental contributions to the probability of success. They were able to predict with 45% accuracy if a client would successfully complete the rehabilitation program or not. The weights assigned to each variable were not recorded in their study.

Referring back to Table 2, where correlations were found among some of the independent variables, multicollinearity could have been a problem effecting the results of the multiple regression analysis. This problem arises in a regression whenever two or more independent variables are not independent but are correlated.

Since the multiple regression model did not show a significant relationship between successful closure and the client characteristics, the chi-square test for independence was applied. Table 4 indicates these results. A significant relationship was found between marital status and successful outcome \( p \leq .10 \) and also between education and successful outcome \( p \leq .05 \). Twice as many uneducated clients were unsuccessful as compared with the educated, successful clients. This was in the expected direction of this study. Twice as many unmarried clients were successfully rehabilitated as compared with the married, unsuccessful clients. This was not in the expected direction of this study.
DISCUSSION

The major analysis (multiple linear regression) failed to support the general hypothesis of this study. That is, the combination of client characteristics did not predict successful rehabilitation of a VR client. "Successful closure," as measured in this study, was not significantly different from zero. The overall combination of the client characteristics used only accounted for 8% of the variance in the prediction of a successful closure. These results were in contrast to previous studies (Schletzer et al., 1958; Kunce et al., 1974; McPhee and Magleby, 1960; Hall, 1973; Growick and McMahon, 1983; Weiner, 1964; and Lafitte, 1978).

A possible explanation for the results of this study could be due to sampling bias. Anderson (1966) noted that biased sampling occurs when subjects are selected in such a way that "certain segments of the population have a greater chance of being represented in the sample than others (p. 67)." In the present sample, approximately one-half of the subjects had mental/emotional disorders. The physical disability types were not equally represented. Bolton (1972) warns against using a mixed disability group. He suggests that even the categories of the physically disabled should be divided into specific disabilities categories, such as, cardiac, lower limb amputees, epileptics, etc. Research has indicated that psychiatrically disabled clients are difficult to predict (Rubin and Roessler, 1978; Anthony, 1972; and Aiduk and Longmeyer, 1972). For example, follow-up studies
of psychiatric patients discharged from mental hospitals show that the majority are rehospitalized within one year after discharge (Aiduk and Longmeyer, 1972).

According to Bolton (1972) and Gressett (1969), multiple correlations reach a point of diminishing return with respect to statistical predictability when as many as four or five factors are considered. Bolton suggests that seldom are more than five independent variables necessary in a linear composite.

Generally, biographical data have not been consistent or accurate predictors of rehabilitation success or failure (DeMann, 1963; Hall, 1973; Howard, 1979; Lesser and Darling, 1953; and Neff, 1975). However, some experienced counselors would suggest that younger clients with a high school education who were not receiving welfare assistance and who were not referred by a welfare agency have a greater success rate than the older, less educated, welfare client. (Growick and McMahon, 1983).

Counselors would also agree that motivation is a prime indicator of success rate, although this study did not accurately predict motivation for success with the measure employed. Motivation is more likely a continual process which is continually observed by the VR counselor and other members of the rehabilitation team and cannot be accurately assessed in the beginning of the rehabilitation process. Perhaps if motivation were rated on a questionnaire given to the client, members of the client's family, and members of the rehabilitation team a more accurate assessment of motivation could be devised.
Lafitte (1978) contends that observations of vocational behavior is often more accurate in predicting rehabilitation potential than the consideration of biographical variables. VR clients are often sent to a work evaluation center for six to ten days, on the average, to assess work-related behaviors. Each client is observed during a six-hour day and is rated on such things as attendance, ability to get along with peers and supervision, cooperation, personal hygiene, ability to follow directions, and communication skills. Clients are also given work-simulated tasks, vocational interest and aptitude tests in order to project a viable vocational goal. If a client completes this work evaluation successfully, he/she is considered a good candidate for VR with good working potential. However, all VR clients are not sent to work evaluation centers. Data used from work evaluation reports could prove to be better indicators of rehabilitation potential and also motivation.

A final explanation for this study not finding high predictability of successful closure with the use of selected client characteristics could be counselor expectations. Darley and Fazio (1980); Snyder and Swann (1978); and Snyder et al. (1977) have researched the concept of "self-fulfilling prophecy." When a VR counselor and a potential client initially interact, the counselor can have pre-determined expectancies of this client becoming successful or unsuccessful. These expectancies affect the way counselors communicate with clients and also affect the way clients, in turn, interact with the counselor. Perhaps if a counselor "expects" a client to become rehabilitated and eventually become successfully employed, that client has a better chance of success.
because he/she would be treated accordingly.

The results of this study indicate that clients should not be rejected for rehabilitation services based on personal characteristics exclusively. Rehabilitation is a continual process and several other factors contribute to a client's chance for success. If future research is conducted in this area of concern it is suggested that variables are rated as continuous instead of dichotomous.
TABLE 1
MEANS AND STANDARD DEVIATIONS OF DICHOTOMIZED SCORES

<table>
<thead>
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<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<td>Age</td>
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<td>Sex</td>
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<td>Education</td>
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<td>Successful Closure</td>
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N = 180

Note. See pages 24 and 25 for dichotomized scores
TABLE 2
CORRELATIONS BETWEEN CRITERION AND PREDICTOR MEASURES

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<th>Edu.</th>
<th>N.D.</th>
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<td>.08</td>
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<tr>
<td>Successful Rehabilitation</td>
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<td></td>
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<td>.05</td>
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*p < .05

N = 180
### TABLE 3
MULTIPLE REGRESSION RESULTS

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<tr>
<th>Independent Variable</th>
<th>Beta</th>
<th>t value</th>
<th>p value</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
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<td>.25</td>
<td>.79</td>
</tr>
<tr>
<td>Sex</td>
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<td>.16</td>
<td>.85</td>
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<tr>
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</tr>
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<td>Education</td>
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<td>Number of Dependents</td>
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</tr>
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</tr>
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</tr>
<tr>
<td>Race</td>
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<tr>
<td>Public Assistance</td>
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<td>1.27</td>
<td>.20</td>
</tr>
</tbody>
</table>

N = 180

Multiple R: .29
R-Square: .08
Intercept: .33

Significance: F (10, 169) = 1.53
p = .13
### TABLE 4
CHI SQUARE ANALYSIS

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pearson's Chi Square</th>
<th>P (Pearson's)</th>
</tr>
</thead>
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<td>.97</td>
</tr>
<tr>
<td>Sex</td>
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<td>.66</td>
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<tr>
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</tr>
<tr>
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<td>Public Assistance</td>
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* \( p \leq .05 \)  ** \( p \leq .10 \)

\( N = 180 \)
REFERENCES


