

PERSONS DENIED ADMISSION TO MEDICAL SCHOOLS: A CASE OF BLOCKED CAREER CHOICE*

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Abstract—This study followed the career paths of a cross-national sample of 9123 students refused admission to the 1966–1967 entering class in U.S. medical schools. Such individuals are, at least temporarily, prevented from continuing formal training toward becoming physicians and must then examine various alternative occupations in health, or other, areas.

The sample of rejectees was stratified by geographic region and by sex. Data were gathered using a mailed, self-administered questionnaire which covered the respondent's personal and academic background, sources of influence in career choice, perceptions of the rejection and variables affecting ultimate career choices. Hypotheses were developed relating academic ability and performance, professorial encouragement, expectancy of acceptance and perceived reasons for rejection to likelihood of persistence in reapplication and subsequent career decisions.

Fifty-two per cent of the sample entered fields unrelated to health and medical care and almost half did not even consider a different health career upon rejection. Moreover, the rejectees reported a substantial lack of knowledge about different health occupations and an absence of advice from professors and academic counselors.

While females had relatively better grades and test scores, they tended to view their rejection as "fair" and were less likely than males to reapply, to hold positive self-perceptions and to choose careers with higher educational requirements and prestige. Surprisingly, male persisters (12 of whom ultimately became physicians) were those who reported difficulty with the hard sciences, achieved lower grades, received less encouragement from instructors to continue study, expected acceptance and attributed rejection to factors outside themselves.

INTRODUCTION

This research focuses on the process of making new career decisions following an unsuccessful attempt to enter an occupation. While review of relevant literature would seem to yield no specific studies of behavior in the face of a "blocked career choice", Blau and his associates [1] have, at a more general level, discussed compromise in individual's career preferences and expectancies as being affected by such social experiences as rejection for a particular position. However, within this occupational choice framework, there is no explicit definition of conditions surrounding the rejection. Blau *et al.* include rejections that might occur at any point in the individual's work history (e.g. failure to gain entrance to a training program or inability to find employment in a field for which the individual is trained). With so broad a conceptualization, it is very difficult to delineate and characterize a unique population of frustrated occupational aspirants.

In the present study, the central concept "blocked career choice" is defined as inability to gain entrance to a given occupation, forcing the aspirant to make another career decision. These situations probably

occur with some frequency, especially in occupations which have limited access (e.g. the law school graduate who never passes the bar and cannot practice law). This study examines blocked career choice experienced by unsuccessful applicants to medical schools.

Several factors combined to make this case a significant problem in the area of occupational choice. First, although this group is relatively large (approximately 10,000 individuals each year) and possesses various desirable characteristics (high academic performance [2,3] and "people-oriented" occupational values [4,5]), there have been no systematic, cross-national studies of the professional and personal experiences of unsuccessful applicants.

Second, these rejectees aspired to a highly prestigious, scientific profession; while they are "failures" by the criterion of admittance to medical school, they are an "elite" group by virtue of their high goal aspirations and by their proximity to attainment of that goal. Moreover, unlike most other fields of study, a premedical course necessitates making many educational and other investments or "side-bets" [6] such as concentrating in the hard sciences and taking specific prerequisite college courses.

Third, these individuals were nearing the end of their undergraduate college education when a new career decision was required, a time when there is little opportunity (aside from graduate study or

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spending an additional year in college) to make appropriate adjustments in training to correspond to a new career path [7].

Finally, inability to gain admittance to medical schools in a given year does not mean that a career in medicine is completely or permanently closed; application to foreign medical schools and reapplication to American schools in subsequent years are possible alternative courses of action. Thus, one study objective was to examine those attitudinal and situational factors involved in the persistence of attempts to enter an occupation after one or more unsuccessful efforts.

Unfortunately, Blau *et al.*'s framework does not provide a means of predicting occupational selection. Instead, viewing occupational choice as a developmental process limited by "variations in knowledge, in rationality and in discrimination between alternatives. . .", Blau *et al.* [1] describe a process of compromise between preferences and expectancies of being able to gain entrance to various occupations. The compromise is continually modified, since experiences in searching for occupations affect expectancies and preferences. The authors suggest for further research ". . . an analysis of the contingency factors that influence the compromise process. For instance, what is the significance of differences in the tenacity with which an individual adheres to his first choice despite continuing inability to realize it?"

The following hypotheses were formulated for the present study: *Hypothesis 1*: Both level of expectancy of acceptance and persistence in reapplication after rejection will be positively related to: (1) college grade point average; (2) Medical College Aptitude Test (MCAT) scores; (3) encouragement by professors; and (4) self-perceptions of ability in the hard sciences. *Hypothesis 2*: The individual's perception of the reasons for rejection will affect his or her persistence; persons who feel that reasons external to themselves were responsible for their rejection will be more likely to persist than will persons who attribute their rejection to internal factors. *Hypothesis 3*: Persons with higher expectations of acceptance will compromise less in their preference for medicine; that is they will be more likely to choose: (1) high prestige occupations; (2) occupations requiring graduate degrees; (3) science or health-related occupations; or (4) a course of persistent reapplication.

METHOD

Subjects

In order to study career patterns and outcomes, it was necessary to allow sufficient time to pass between the medical school rejection and this survey. However, the more distant the year of rejection, the lower the possibility of contacting the respondents and the lower the probable level of recall concerning aspects of the rejection. Sampling applicants to the 1966–1967 entering class seemed to represent the best compromise, and it was assumed that most of these applicants took the MCAT in May or October of 1965.

The Association of American Medical Colleges (AAMC) provided a list of persons completing the MCAT in 1965, as well as a list of individuals matri-

culating in the 1966–1967 freshman medical school class. Subtracting the names on the latter list from those on the former resulted in a reasonably accurate sampling frame of unsuccessful applicants, from which 164 men and 163 women were selected by stratified (on sex and geographic region) random procedures.

In the spring of 1971, postcards were mailed to the 1965 addresses of the prospective respondents informing them of the study and its purposes, and requesting their participation. The postcard mailing yielded 105 cases where the individual no longer resided at the 1965 address, and no forwarding address was available.

Questionnaires were mailed to the remaining 222 subjects, of which 152 replied, a response rate of 68.5%. Unfortunately, 27 cases were found to have never applied to medical school although they had taken the MCAT, and another 27 respondents had in fact been accepted to a U.S. medical school in 1966, representing possible computer error in the list subtraction technique mentioned above. Both groups were dropped from the study, leaving 98 questionnaires deemed useable for analysis. The final sample included 57 men and 41 women.

Data from AAMC computer listings permitted comparisons between the 98 respondents studied and the 70 nonrespondents. These groups were found not to differ significantly by age and sex distributions or by whether or not they had taken the MCAT before. The remaining information, which related to MCAT performance, revealed that respondents differed significantly from nonrespondents only on the "Science" test mean score, and it is therefore concluded that the study data are relatively unaffected by possible response bias. Finally, comparisons of respondents' mean scores with those of all unaccepted applicants in 1966–1967 suggests that the former group is a fairly representative sample of the latter.

Definitions

Several key definitions were developed which draw upon the research of Holland [8], Davis [2], Underhill [5] and Rosenberg [4].

Career outcomes. The occupation of "physician" can be considered from the standpoint of its *situs* (health, science) and its status (prestige level and educational level) [9]. Thus, occupational outcomes of unsuccessful applicants in this study have been classified according to their: (1) relationship to the health field; (2) relationship to the hard sciences; (3) educational requirements; and (4) level of prestige.

Persistence. This variable was defined as reapplication one or more times following initial rejection by medical school. Faced with denial of admission, these individuals (hereafter referred to as "persisters") waited at least one year for another opportunity to enter their chosen field. "Persistence" is operationalized as: none (no reapplication); low (one reapplication); and high (two or more reapplications).

Compromise. This variable is derived from the occupational choice behavior and persistence of the unsuccessful applicants. In keeping with Blau *et al.*'s [1] discussion of the compromise process, "low" compromise is seen as high persistence and/or the choice of an occupation similar to medicine in *situs* and/or

status; similarly, "high" compromise is low persistence and/or the choice of an occupation which is dissimilar to medicine in *situs* and/or status.

Level of expectancy. This variable refers to the applicant's estimation of the likelihood of his or her admission to medical school. A measure of this "expectancy" was derived from the following question: "At the time you first received notices of nonacceptance from medical schools, did you feel that, in general: (1) the schools made a fair decision; (2) the schools made an unfair decision; or (3) no opinion?". It is assumed that the individual who felt the rejection was "fair" probably had little expectation of being accepted, whereas the person who chose "unfair" probably had a relatively higher expectation of admission.

RESULTS

Prior to discussing those data relevant to tests of the hypotheses, it is necessary to note the powerful relationship found on almost all the study dimensions, between sex and career choice behavior. For example, Table 1 shows level of expectancy of acceptance to be significantly related to sex. Approximately 55% of the males, as compared with 28% of the females, felt their nonacceptance was "unfair", suggesting that women were much more likely to expect to be rejected. Because of these differential relationships, findings in each table are presented separately by sex.

Table 2 presents relationships between level of expectancy and perceived and objective measures of academic success in college. Men and women with higher grade point averages in college were more likely to expect to be accepted into medical school. This finding supports our hypothesis and suggests that college grades (or objective measures of academic performance) influence students' expectations concerning the probability of admission.

The next variable, MCAT scores, is more a measure of academic ability than of objective academic performance. For males, there is a small, nonsignificant positive association between MCAT score and level of expectancy. On the other hand, females with higher MCAT scores were *less* likely than those with lower scores to anticipate acceptance. Thus, for men, we find little or no association to support or contradict this part of the first hypothesis, while for women, there is some evidence to challenge the hypothesis. It may be that MCAT scores are not as important to applicants as college grades in their assessment of their chances for admission to medical school.

A group of questions pertaining to the hard

Table 2. Correlations (Gammas) between level of expectancy of acceptance and measures of academic ability, performance, and perceived success in college, by sex

Academic variables	Level of expectancy	
	Males	Females
Grade point average	.34*	.45*
MCAT total score	.12	-.35*
Knack for hard science	-.10	-.34*
Found hard sciences difficult	.15	.07
Professors encouraged me in hard sciences	-.13	-.26

* $p < 0.05$

sciences was included because of the importance of these science courses in a medical school's assessment of an applicant's suitability. For the men, perceived success in the hard sciences seems to have little or no relationship to level of expectancy, but, for the women, two questions have a fairly large negative association with anticipated success. Women who said they had a "knack" for the hard sciences and those whose college professors encouraged them to continue study in the hard sciences were *less* likely to expect to be accepted. These findings contradict the hypothesis; perhaps, as with the MCAT scores, the applicants do not place much weight on perceived ability in the hard sciences in their assessment of their chances for admittance to medical school. This point will be explored further in later analyses.

The second hypothesis concerns the relationship between persistence and objective measures of academic ability and performance. Table 3 shows the results of statistical test on these variables.

Males with higher grade point averages are no more likely than those with lower averages to persist in reapplying for admission to medical school. On the other hand, females with higher grade point averages are far *less* likely to be persisters than those with lower averages. College grades, therefore, are not related to persistence in the manner hypothesized.

Similarly, total MCAT score is not related to persistence for either men or women, indicating that this part of the hypothesis is also unsupported. However, there is some evidence for the hypothesis derived from scores on the Science section of the MCAT. Men with higher scores on the Science section are significantly more likely than men with lower scores to be persisters; and for women, one also finds a small correlation in the hypothesized direction.

Relative to perceived ability in the hard sciences, the results for the men and women are quite different. Women who said they had a "knack" for the hard sciences were much *less* likely to persist in reapplying, while for men, there is a small positive relationship between perceived ability and persistence. Thus, the hypothesis is again not supported, and is further weakened by results from the question concerning finding the hard sciences "rough-going". Rejectees who found the hard sciences difficult were somewhat *more* likely to persist in reapplying.

As for professorial encouragement to continue in the hard sciences, the relationship with persistence by females is essentially zero, while for males, those so encouraged were much *less* likely to continue with attempts to enter medical school.

Table 1. Distribution of males and females by expectancy of acceptance*

Level of expectancy	Males		Females	
	N	%	N	%
High	30	54.5	11	27.5
No opinion	9	16.4	11	27.5
Low	16	29.1	18	45.0
Total	54	100.0	40	100.0

* Gamma = .39
($p < 0.05$)

Table 3. Correlations (Gammas) between persistence and academic ability, performance, and perceived success in college

Academic variables	Level of persistence	
	Males	Females
Grade point average	-.19	-.62*
MCAT total score	.11	.08
MCAT science section	.42*	.27
Knack for hard sciences	.18	-.65*
Found hard sciences difficult	.36	.35
Professors encouraged me in hard sciences	-.58*	.01

* $p < 0.05$

The second hypothesis concerned the applicant's perceptions of the reasons for nonacceptance. Before addressing this hypothesis directly, it is important to note the distribution, by sex, of responses to the question asking for the individual's perceptions of the most important determinants of his or her rejection.

It is evident from Table 4 that most rejectees assessed their academic performance and ability (as measured by grades and MCAT) to be the primary factors responsible for rejection. Put another way, the data suggest that the cause of the rejection was most often perceived as located *within* the individual, rather than in the selection process, the selectors, or some other external source. When the list of reasons is divided into two groups—those concerning the individual and those external to the individual—only 31% of the women and 35% of the men cited "external" factors as most important in their rejection.

Although males and females differed little in their evaluations of the main reason for nonacceptance, data in Table 5 indicate that 53% of the men, but only 20% of the women, reapplied to medical school in subsequent years. Moreover, 30% of the men (as compared with 2% of the women) reapplied more than once; in fact, some males reapplied as often as four times following initial rejection. Thus, despite their similarities in identifying reasons for rejection, males were much more likely than females to be willing to make further attempts at a career in medicine.

Pursuing this question further, Table 6 displays correlations between endorsement of various internal or external reasons for rejection and persistence. Among the male respondents, those who believed their rejection was caused by *external* factors were

Table 4. Distribution of "most important" reasons for medical school rejection, by sex

Most important reason	Males		Females	
	N	%	N	%
Low grades	27	47.4	17	41.5
Low MCAT scores	9	15.8	9	22.0
Interview impression	1	1.8	1	2.4
Incomplete applications	4	7.0	4	9.8
Poor recommendations	4	7.0	0	0.0
Didn't know "influential people"	7	12.3	1	2.4
Applied to select schools	0	0.0	3	7.3
Discrimination	1	1.8	2	4.9
Lacked money	0	0.0	1	2.4
Didn't attend the "right" college	3	5.3	0	0.0
Other	1	1.8	3	7.3
Total	57	100.0	41	100.0

Table 5. Level of persistence in reapplying for admission to medical school by sex*

Level of persistence	Males		Females	
	N	%	N	%
High	17	29.8	1	02.4
Low	13	22.8	7	17.1
None	27	47.4	33	80.5
	57	100.0	41	100.0

* Gamma = .65 $p < 0.05$

much more likely to persist, while conversely, those women endorsing *internal* factors as the cause of their rejection were more likely to continue to reapply. Hypothesis 2 appears therefore to be confirmed for the men and contradicted by the findings for the women.

Table 7 contains findings which bear upon the compromise process and its relationship to the applicant's level of expectancy of acceptance to medical school. First, looking at persistence, it can be seen that men who expected to be accepted initially were likely to reapply. However, for women, the relationship between level of expectancy and persistence is about zero. Thus, the data for the men support Hypothesis 3, but the findings for the women do not.

The remaining variables in Table 7 refer to other career outcomes. Females with a higher level of expectancy were more likely to earn higher degrees. For males, the significant relationships pertain to science-related and health-related occupations; men (but not women) with a higher level of expectancy were more likely to enter these occupations. At this point it is helpful to introduce data concerning specific career outcomes.

Table 8 contains the various career paths of these rejectees five years after their first unsuccessful attempt at entering medical school. Eventually, 10 men (18%) and two women (3%) gained admission to medical school. About equal percentages of men and women (36%) entered other health fields, and an additional 17% of the sample entered careers in the hard sciences. The "Other" category includes humanities, business, law, teaching, social sciences, etc., and contains a somewhat larger percentage of women (44%) than men (29%). In total, 71% of the men and 56% of the women ultimately entered careers in medicine, health, or the hard sciences.

Table 8 also reveals that a considerable proportion of the females (63%) embarked upon careers in teaching or laboratory technology, as compared with only two (4%) of the males. Despite their attempts to enter

Table 6. Correlations (Gammas) between perceived "most important" reason for rejection and persistence, by sex

Most important reason	Level of persistence	
	Males	Females
Low grades	-.10	.49*
Low MCAT scores	-.25	-.02
Poor recommendations	.33*	.24
Didn't know "influential people"	.10	.20
Discrimination	-.19	-.12
Index of "internal" reasons	-.07	.32*
Index of "external" reasons	.40*	.18

* $p < 0.05$.

Table 7. Correlations (Gammas) between expectancy of acceptance and career outcomes, by sex

Career outcomes	Level of expectancy	
	Males	Females
Persistence	.30*	-.05
High-prestige occupation	.06	.25
Degree level attained	-.01	.40*
Science-related occupation	.48*	.18
Health-related occupation	.66*	.16

* $p < 0.05$

a prestigious scientific profession, women in this sample are remarkably similar in their career outcomes to the general population of women college graduates [10]; i.e. a majority of the women entered what Davis [2] has termed the "typical feminine" occupations, making greater compromises than did the men in terms of original occupational preference.

These compromises may also be influenced by the greater tendency, on the part of women applicants, to hold negative self-perceptions. Respondents were asked to rate themselves along each of 7 bi-polar adjective dimensions, and the results are shown in Table 9.

While females tended to perceive themselves as somewhat more "humanistic" and "altruistic", they were much more likely than males to describe themselves as "unscientific", "unimportant", "inferior", "powerless" and "anomic", suggesting that women applicants may use the rejection as additional proof of their inadequacy for further graduate study and for careers demanding high levels of responsibility and performance [11].

Because of the consistent pattern of male-female differences observed in the findings, both groups were compared with regard to selected demographic and background variables (e.g. age, religion, size of community in which raised, parents' socioeconomic status) and "geographic distribution" (a check on stratification after sample attrition). No statistically-significant differences were found between groups for any of these variables, although males tended towards relatively higher parental socioeconomic status.

Unfortunately, for reasons of confidentiality, the

names of the particular medical schools applied to by the rejectees were neither reported in the AAMC listings nor requested from the respondents. Thus it is impossible to compare males and females on the dimension of the relative "prestige" of the medical schools to which they applied. Of course, a reputational ranking of medical schools would be, at best, rather subjective and tenuous; moreover, such ratings are presently available for only the 10 "leading" schools of medicine [12]. However, there is no necessary reason to believe that, even if group differences existed on this dimension, affects would be observed on such variables as propensity to reapply, decisions to continue graduate education, and ultimate career choices.

Finally, while these data are necessarily fixed to a sample of applicants in the 1966-1967 academic year, a recent follow-up of students unable to enter the 1971-1972 medical school class has shown essentially the same subsequent male-female differences in patterns of application persistence and future career aspirations as those presented in this report [13].

CONCLUSION

This study examined career decision-making following a blocked health career choice, focusing upon the preferences and expectancies of a group of unsuccessful applicants to medical school. In addition, the authors sought to apply Blau *et al.*'s framework of career choice to the attitudes and behaviors of these individuals following their rejection.

It was found that: (1) level of expectancy of acceptance is mildly related to academic performance in college; (2) persistence in reapplying to medical school is not associated with measures of ability or performance; (3) males who believed that external factors caused their rejection, and females who attributed rejection to internal factors, were more likely to persist in reapplying; (4) men who expected initial acceptance were more likely to persist in reapplying, but expectation was not related to women's persistence; (5) career outcomes and compromises were related to level of expectancy, although not consistently for men and women. Blau *et al.*'s conceptualization was found to have some application to the problem of blocked career choice, but not to adequately explain the study's findings, particularly in the case of alternative career outcomes for women.

Table 8. Distribution of subsequent career choices of unsuccessful applicants, by sex

Career Choice	Males	Females
Health	30 (52%)	17 (41%)
Physician	10	2
Dentist	7	0
Other "professionals"	12	1
Medical or laboratory technician	1	14
Hard Sciences	11 (19%)	6 (15%)
Biologist	8	3
Chemist	1	3
Engineer	2	0
Other	16 (29%)	18 (44%)
Teaching	1	12
Business or law	11	1
All others	4	5
Total	57 (100%)	41 (100%)

* Podiatrist, Pharmacologist, Pharmacist, Optometrist, Health Educator, Sanitary Engineer, Medicin or Science Writer.

Table 9. Percentages of unsuccessful applicants perceiving themselves as characterized by a particular adjective choice, by sex

Adjective chosen	Males	Females
Scientific (versus unscientific)	89.5	80.5
Important (versus unimportant)*	84.2	73.1
Superior (versus inferior)*	73.7	56.1
Powerful (versus powerless)*	52.6	36.5
In-group (versus out-group)	48.2	39.0
Humanistic (versus materialistic)	57.9	68.3
Altruistic (versus egocentric)*	43.9	53.7

* $p < 0.05$

It is somewhat distressing that men completing graduate training were more likely to state that their occupational values, rather than their abilities, were important in their choice of a new career; these individuals were also found to be significantly lower on "people orientation" and "interest in science". In terms of reasons stated for desiring a career in medicine, men were more likely to be motivated by desires for "freedom from supervision", "high income" and "prestige". Male persisters (including the 10 who successfully persisted in their desire to become physicians) were found, relative to the nonpersisters, to have significantly lower grades, to have reported experiencing some difficulty with the hard sciences in college, to have received less encouragement from their instructors to go on in these fields, and to blame their rejection on factors "external" to themselves.

The main study findings, together with analyses of additional questions, provide some clues concerning the women's behavior. More men than women felt that their parents would have offered financial assistance for attending medical school, and more males (40%) than females (25%) had relatives who are physicians (men were also twice as likely to have relatives in other health occupations).

While they were as qualified as men in terms of objective academic performance, and perceived themselves as being fairly successful in the hard sciences in college, women were much more likely to feel that their rejection was "fair" and to choose careers with lower prestige and lower educational requirements (over 80% of the female rejectees reporting their career field as "health" were laboratory technicians). Women, like the medical school admissions committees and other career gate-keepers they encounter, may place higher or more rigid performance requirements upon themselves [14]; i.e. while a man may view a "B" average as good academic performance, a woman may feel she has to work at the "A" level to perform and compete adequately. It may also be that women applicants view the rejection as reinforcement for their negative self-perceptions. These findings suggest that special efforts will have to be made to encourage female rejectees to undertake training toward needed occupational roles in the health and medical care system.

Fifty-two per cent of the study sample was ultimately lost to the health care field. At one time, all wished to have a career in medicine, underwent considerable related training at the undergraduate level, and received bachelor's degrees. However, data from other parts of the study questionnaire show that almost half of the rejectees did not even consider a different health career upon rejection and most reported lack of knowledge about other health occupations and little receipt of advice from professors and academic counselors concerning alternative health careers. These findings suggest that the undergraduate guidance system is not very helpful to this sizeable group of students. Information and advice on health-related occupations (e.g. at the master's or

doctoral level in various areas of public health) could be compiled and made relevant and available to pre-medical and other undergraduate advisors, with the hope of attracting more unsuccessful medical school applicants into manpower-short health fields. Indeed, nearly half of the study respondents reported that if financial support were made available, they would be willing to leave their present careers to enter training toward a doctorate in a health-related field.

Further attempts to build upon Blau *et al.*'s framework should be made. Perhaps, as Blau himself suggests, a longitudinal study which focuses on rejections and compromises as they occur over time would be most helpful in examining and modifying his conceptualization of career decision-making. Additional research might also be devoted to: (1) studying the reasons for the substantial numbers of rejectees lost to the health care field; (2) evaluating mechanisms for intervening in the career choice process; and (3) further exploration of the general tendency for the relatively less qualified rejectees to persist (often successfully) in their desire to become physicians.

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