SPECIAL ARTICLE

Canadian Medical Student Interest in General Practice and the Specialties

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ABSTRACT

The interest of 1900 Canadian medical students in the various fields of medical practice was measured by a questionnaire. The students were asked to rank the various fields in order of their interest in them. It was found that general practice, internal medicine and surgery were the fields which consistently captured most interest among the students. Few students ranked dermatology, administration, teaching and research in the first three ranks.

Striking differences in the interest preferences of male and female students were demonstrated, with the women ranking pediatrics and psychiatry higher than the men. Significantly more men, however, expressed a prime interest in surgery.

Interest in general practice increases with the senior years in medical school, but it was shown that this increase is associated with marital status and with the number of children rather than with the year of training alone.

Interest in the fields of medical practice varied between medical schools, with general practice ranking highest at British Columbia and relatively low at McGill and Manitoba. Significant differences between the students of the schools were displayed in the case of neurology, obstetrics, pediatrics and psychiatry.

SOMMAIRE

On a cherché à évaluer, au moyen d'un questionnaire, l'intérêt manifesté par 1900 étudiants en médecine canadiens à l'égard des diverses disciplines de la pratique médicale. Les étudiants ont été priés d'énumérer, dans l'ordre de leur préférence personnelle, le genre de pratique qui les intéressait le plus. La médecine générale, la médecine interne et la chirurgie étaient les domaines qui éveillaient le plus l'intérêt des étudiants. Un petit nombre ont fait figurer dans les trois premières places, la dermatologie, l'administration, l'enseignement et la recherche.

On a noté des différences frappantes dans l'ordre de préférence selon qu'il s'agissait d'étudiants masculins ou féminins: les femmes notamment faisaient figurer la pédiatrie et la psychiatrie en meilleure place que les étudiants masculins. Par contre, un nombre plus fort d'hommes exprimaient un intérêt primordial pour la chirurgie.

L'intérêt manifesté en faveur de la médecine générale augmentait à mesure que les études approchaient de leur terme, mais cet intérêt était motivé plus par le statut marital et le nombre d'enfants que par l'état d'avancement des études.

L'intérêt pour les divers domaines de la pratique médicale variait selon la Faculté, la médecine générale venant en tête en Colombie canadienne et au bas de la liste à McGill et au Manitoba. En ce qui concerne la neurologie, l'obstétrique, la pédiatrie et la psychiatrie, on constatait des différences considérables dans les avis exprimés par les étudiants des diverses Facultés de médecine.

IN RECENT years there has been a growing body of literature concerning the career choices and interests of students. A number of these studies have focused on the trend towards an early commitment on the part of the medical student and intern to specialization, and in the United States this trend has been well documented.[1-6] Other studies have been concerned with the factors that formulate, mould and change the interests of the students in the various fields of medical practice, and particular attention has been paid to the influence of the medical school and its faculty, as well as to the effect of the personalities and social characteristics of the students themselves.[7-13]

The methods used to measure the interests and career choices have varied from interviews, questionnaires and psychological tests to data obtained from yearbooks and alumni bulletins. Some of the studies have been carried out on a retrospective basis, questioning senior students, interns, and physicians who have graduated several years earlier. Other studies have followed the career choices and interests of classes of students over the succeeding

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years of their medical course, while others have focused on a medical school's entire student body at one time, or on a sampling of United States medical students.

Although all of these studies have produced information of interest and significance to medical educators, the limited samples studied do not permit generalizations of the results to a particular group of students, such as those in Canada or in a particular Canadian medical school. This study, therefore, focused on two particular aspects of this area of research: (1) on developing and testing methods by which career interests and choices can be measured and analyzed, and (2) on obtaining a description of the interests of Canadian medical students in the various fields of medical practice.

METHOD

A questionnaire was designed which, in addition to ascertaining the social and academic characteristics of the student, posed three questions. Two of these questions were related to (1) the student's perception of the prestige assigned to the various fields of practice by the public, and (2) the perceived importance of the various fields of practice to a community hospital. The data in the present paper are confined to an analysis of the responses to the third question, which was worded as follows:

Number, in order of personal preference, the following fields in which you are interested:

Surgery	Pathology
Internal Medicine	Medical Teaching
Neurology	Dermatology
Psychiatry	Administration
Obstetrics	Pediatrics
General Practice	Medical Research

It will be noticed that not all possible fields of practice were included in the list. The choice of fields was limited because the purpose of the study, as originally designed, was simply to measure the student's interest in, assignment of prestige to, and evaluation of the importance of general practice. Specialties were included only to provide a standard of comparison. For this reason, the rankings assigned to the various fields by the students are valid only in a relative sense. It may well be that a student would have a prime preference for, and interest in, one or more of the fields not listed and the questionnaire would not have permitted him to express his own personal choices.

It should also be noted that the question, as phrased, does not ask the student whether or not he intends to enter the field of practice when he has completed his training. Care has been taken, therefore, in the following analysis to emphasize that the student's interest only is being discussed.

POPULATION AND SAMPLE

The questionnaires were sent to the presidents of all medical school classes in Canada in the spring of 1964 with instructions for distribution to all medical students and return to the investigator.

One school did not take part in the study at all, and a fourth-year class of another school also did not participate. A total of 1900 questionnaires was returned, representing a response rate from the population of medical students in Canada of 56.3%. The response rates varied by individual class, by year, and by medical school; for example, 48% of first-year students responded, in contrast to 66% in the second year, 53% in the third and 60% in the fourth year. The composition of the sample, with respect to sex and citizenship status, was compared with the known characteristics of all Canadian medical students and there appeared to be little difference between the sample and the population. While there is no reason to believe that the non-respondents are different from respondents with respect to their interest in the fields of medical practice, the results should not be generalized from the respondents to the total population of Canadian medical students.

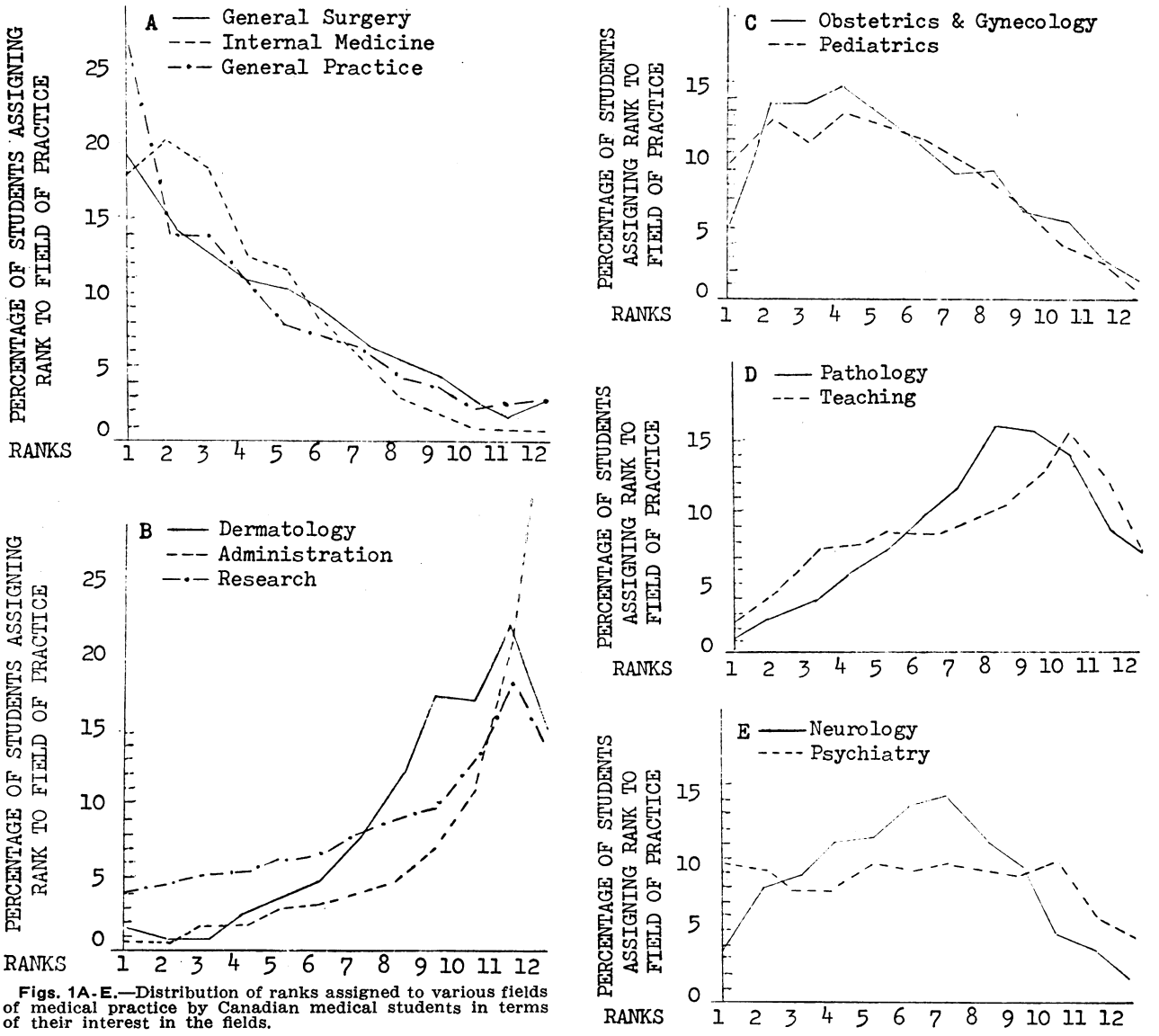
RESULTS

The question, as asked, required the students to number the various fields in order of their personal preference. This procedure produces, in effect, a ranking of the fields in terms of the student's interest in them, and in the following discussion the terms "ranks" and "rankings" are used to denote the numbers assigned to the field by the students.

The Distribution of Interest in Fields of Medical Practice

The distributions of the rankings of the fields of medical practice awarded by the medical students in terms of their interest in these fields are shown in Fig. 1. This method of presentation has been chosen not only to show the students' relative interest in each field of medical practice but to illustrate the different patterns of distribution that occur. Fig. 1A, for example, shows that general practice, surgery and internal medicine are placed in the first three or four ranks by a majority of the students. On the other hand, administration, dermatology and research in Fig. 1B are usually placed in the last three or four places.

Four other fields (Figs. 1C and D) show skews in the distribution to one end of the scale or the other. A majority of students rank obstetrics and pediatrics in the first six choices but with relatively more selections in ranks "3" to "6". While the fields of general practice, internal medicine and surgery seem to have captured the main interest of the students, the other major specialties are close behind. Pathology and teaching find support from the students all along the scale, but the weight of the rankings is distributed towards the lower end. These fields generate more interest than do administration, dermatology and research, but the distri-



Figs. 1A-E.—Distribution of ranks assigned to various fields of medical practice by Canadian medical students in terms of their interest in the fields.

bution of interest rankings indicates that they are relatively unpopular choices.

There is some degree of consensus among the students as to their relative interest in these fields. Psychiatry, however, receives an almost equal number of rankings on every point of the scale (Fig. 1E), suggesting that there is little consensus among students with respect to psychiatry. Perhaps the intrinsic nature of the field itself and the types of medical problems with which it deals contribute to this phenomenon.

Measures of Overall Interest

To analyze the data further it was necessary to summarize the distributions of interest described above. The variety of distributions and the ordinal nature of the data preclude the use of parametric statistics, necessitating recourse to other methods.

Most previous surveys using similar ranking procedures have adopted the number or percentage of students ranking the field as first as the overall criterion of students' interest or preference for that field. From Table I it can be seen that, in the present survey, general practice was selected by more students (506 or 26.6% of the students assigned rank "1" to this field) than any other field of practice as being of the greatest interest to them. The two major specialties, surgery and internal medicine, however, follow closely behind (18.7% and 18.5%, respectively), with pediatrics, psychiatry, and obstetrics and gynecology all receiving less than 10% of the students' vote for prime interest.

It would be tempting to conclude from these findings that among medical students general practice is the most popular field, but it should be borne in mind that if research, teaching and administration are excluded 67% of the medical students in this sample were more interested in a specialty than in general practice. Whether all of these students intend to specialize and will do so is another question.

The use of the percentage of the first ranks only for analysis tends to obscure the interest, or lack

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TABLE I.—INDICES OF THE INTEREST OF CANADIAN MEDICAL STUDENTS IN VARIOUS FIELDS OF MEDICAL PRACTICE

Field of medical practice	*% of students selecting field as "1" in terms of interest*	*Overall rank*	*% of students selecting field as "1", "2" or "3" in terms of interest*	*Overall rank*	*Modal rank assigned by students*	*Median rank assigned by students*
General practice	26.6	1	53.6	2	1	2
Surgery	18.7	2	45.1	3	1	3
Internal medicine	18.5	3	56.4	1	2	2
Pediatrics	9.3	4	31.2	4	4	4
Psychiatry	9.1	5	25.3	6	10	5
Obstetrics	5.5	6	30.2	5	4	4
Research	3.7	7	12.6	9	11	8
Neurology	3.5	8	19.0	7	7	5
Medical teaching	2.3	9	13.4	8	9	7
Pathology	1.5	10	7.8	10	8	7
Dermatology	1.0	11	2.6	11	11	9
Administration	0.3	12	2.4	12	12	10

of it, reflected by other ranks assigned to the various specialty fields. Since the student is forced to assign a rank to each and every one of the listed specialties, it should be possible to arrive at some overall evaluation of the interest exhibited by Canadian medical students in the various fields.

Assuming that medical educators will emphasize fields in which the students are interested, the combined percentage of students assigning either rank "1", "2" or "3" to the field was arbitrarily chosen as the index of overall interest. This index takes into account the weight of rankings in positions "2" and "3" accorded to the major specialties, surgery, internal medicine, obstetrics, and pediatrics. The shifts in overall rank are shown in Table II and it can be seen that internal medicine becomes the field drawing most interest from students, using the new criterion. In addition, it will be noticed that when using first choice only, interest in every field except general practice, surgery, and internal medicine seems to be at a low ebb. The use of second and third choices gives some indication of the popularity of other fields among the students. For example, while only 3% of students give neurology as first choice, nearly 20% rank it in the first three, a figure which not only changes its relative position among the fields, but suggests that it has a far greater degree of popularity.

TABLE II.—SEX AND INTEREST IN FIELDS OF MEDICAL PRACTICE OF CANADIAN MEDICAL STUDENTS

Field of medical practice	*Percentage of students ranking fields "1", "2" or "3" in terms of interest*		
	Male	*Female*	*Total*
General practice	54.7	44.4	53.6
Surgery	48.0	21.0	45.1
Internal medicine	57.7	44.8	56.4
Pediatrics	28.5	53.2	31.2
Psychiatry	23.1	37.6	25.3
Obstetrics	30.2	30.2	30.2
Research	11.9	19.0	12.6
Neurology	18.6	21.4	19.0
Medical teaching	13.9	10.2	13.4
Pathology	7.1	12.2	7.8
Dermatology	2.5	3.4	2.6
Administration	2.5	1.0	2.4
Number of students	1695	205	1900

The median rank assigned by the students to each field and the mode of the distribution of the ranks are also shown in Table I. It will be noted that while most fields of practice do not change their position dramatically in overall ranking when compared with the criterion of the percentage of students assigning first rank to the field, psychiatry and research show notable shifts downward in the ranking when the mode is used as the basis for overall evaluation. Similarly, when the median ranking is used the clear advantage enjoyed by general practice as the field of prime interest disappears. While the median is perhaps the best measure of central tendency of these distributions, its further use would not provide a quantitative measure of students having major interest in the various fields.

Sex and Interest in Fields of Medical Practice

The differences between the interests of men and women medical students in the various types of medical practice are quite striking for several of the fields. In particular, it will be noted from Table II that while 53% of women included pediatrics in their first three choices, only 28% of the men did so. Psychiatry also appears to be a field of feminine interest, 38% of the women ranking this field in the first three ranks, in contrast to 23% of the men. Surgery appears to retain its traditional male interest, only 21% of the women including this field in their first three choices; on the other hand, internal medicine, perhaps somewhat surprisingly, is of more interest to men than to women (55% to 44%). Almost identical figures appear for general practice.

Explanations for these various differences are not self-evident from the data available. Certainly, it might be argued on a logical basis that women should have a particular interest in pediatrics: and surgery has always been so dominantly a "male" field that it is perhaps surprising that as many as 21% of the women have a high interest in it. It is not clear, however, whether the lesser "female" interest in general practice and internal medicine is due to the demands that such practices make on the

time and efforts of the practitioner, or to the inherent nature of the fields themselves. It might be argued, for example, that fields such as psychiatry, pathology and research are areas that might be attractive to women because of the opportunity for regular working hours, permitting them to combine a career and marriage.

Year of Training and Interest in Fields of Practice

The changes in interest in the various fields as students pass through the various stages of the medical course can be assessed, assuming they have definite interests when they begin medical school. In Table III, the percentage of students assigning

TABLE III.—YEAR IN COURSE AND INTEREST IN FIELD OF MEDICAL PRACTICE OF MEDICAL STUDENTS

	Percentage of students ranking fields "1", "2" or "3" in terms of interest			
Field of medical practice	*First year*	*Second year*	*Third year*	*Fourth year*
General practice	46.6	54.0	59.8	55.4
Surgery	51.3	42.0	40.9	46.8
Internal medicine	42.2	62.5	63.1	57.7
Pediatrics	32.9	30.0	28.5	31.5
Psychiatry	27.8	23.7	24.3	24.9
Obstetrics	29.8	30.0	30.4	31.2
Research	19.9	11.3	9.8	9.7
Neurology	20.4	19.5	19.2	16.0
Medical teaching	11.3	13.8	15.4	13.9
Pathology	9.5	9.8	3.0	7.1
Dermatology	3.4	1.5	2.1	3.7
Administration	3.0	2.7	2.1	1.3
Number of students	496	595	428	381

"1", "2" or "3" ranks to the various fields is shown for each individual year of the medical school training. Generally speaking, only three fields show a change of over 10% between the first and the fourth year. Internal medicine was ranked in the first three places by 42% of the first-year class, but 62% of the second-year class favoured this field, this percentage being maintained, with a drop of 5% in the final year. This apparent large increase in interest may be due to a more specific definition of the field of internal medicine, although if this were so, the change might be expected between the second and third years. However, since the students were surveyed towards the end of the academic year, their introduction to clinical teaching in the first and second years may account for this increase.

It is notable that the only large decrease (from first to fourth year) concerns research. The large part of this decrease took place between the first and second years and may reflect a re-evaluation of research in medicine following the usual basic science courses. At the same time, the introduction to clinical subjects may, relatively speaking, push the scientific interest into the background.

General practice attracted more interest among the senior students, 55% of those in fourth year giving it a rank in the first three places, in contrast to 47% in the first year. While this may be encouraging to those who look for a greater orientation toward general practice in our medical schools and might lead them to interpret this finding as demonstrating this orientation, data presented in the next section suggest that an alternative explanation exists.

Marital Status and Interest in Fields of Medical Practice

An attempt to account for changes in the medical students' interest by reference to their experience during various years in the medical course tends to minimize the effect of the changes that take place in the student's personal circumstances; for example, the responsibilities of marriage and a family may militate against a student's initial interest in a specialty. An analysis of our data showed that while 24% of the single students chose general practice as their first interest, 35% of married students did so. However, since most married students are found in the senior year of the medical course, this finding could be explained by the effect of the medical curriculum. For this reason the percentage of students ranking general practice "1", "2" or "3" was analyzed by marital status for each year of training. Table IV shows that while all three groups (single, married, and married with children) had approximately equal interest in general practice in the first year, by the fourth year the percentage of married students with children ranking the field "1", "2" or "3" reaches over 70%, in contrast to only 48% of single students and 61% of married students. These data provide strong evidence that marital responsibilities may have some influence on the student's interest in the various fields of practice.

Medical School and Interest in Fields of Medical Practice

For the medical educator, a major question is the extent to which the emphases in curriculum and professorial strength influence the students' interest in the various fields of practice. Assuming that initial interest in the various fields does not vary greatly among students entering the individual schools, and that students do not choose a school

TABLE IV.—MARITAL STATUS, YEAR IN COURSE, AND INTEREST IN GENERAL PRACTICE OF CANADIAN STUDENTS

	Percentage of students ranking general practice "1", "2" or "3" in terms of interest											
General practice	*First year*			*Second year*			*Third year*			*Fourth year*		
	s	*m*	*mc*	*s*	*m*	*mc*	*s*	*m*	*mc*	*s*	*m*	*mc*
	46.5	46.2	50.0	45.4	61.5	66.7	57.5	61.0	75.0	47.8	61.4	72.5

s—single. m—married. mc—married with children.

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TABLE V.—MEDICAL SCHOOL AND INTEREST IN THE FIELDS OF MEDICAL PRACTICE OF CANADIAN MEDICAL STUDENTS

	Percentage of students ranking fields "1", "2" or "3" in terms of interest										
Field of medical practice	*Dal.*	*Lav.*	*Mont.*	*McG.*	*Tor.*	*Qns.*	*Ottawa*	*Man.*	*Sask.*	*Alta.*	*B.C.*
General practice	58.3	50.2	52.0	43.6	56.5	63.5	52.4	42.4	56.4	51.3	73.8
Surgery	48.8	49.1	35.8	40.6	40.3	48.1	50.8	47.2	42.0	52.6	50.8
Internal medicine	57.5	53.6	62.9	64.1	57.8	47.4	50.0	58.4	54.6	57.9	47.5
Pediatrics	26.0	21.7	29.4	41.9	34.2	35.3	31.1	45.6	26.9	28.3	25.4
Psychiatry	20.5	31.1	32.8	23.1	22.7	24.4	21.3	24.8	26.0	15.1	27.9
Obstetrics	32.3	35.2	32.3	17.5	30.7	32.0	32.0	29.6	44.5	26.3	23.7
Research	7.9	13.5	15.7	17.5	12.4	10.9	11.5	12.8	8.4	11.8	10.2
Neurology	23.6	16.5	19.2	20.5	16.7	12.2	24.6	20.8	19.3	25.6	12.7
Medical teaching	15.0	10.1	10.5	18.8	17.1	12.8	15.6	12.0	6.7	15.8	11.9
Pathology	6.3	12.0	9.2	5.1	5.8	7.7	6.6	5.6	5.9	7.2	10.2
Dermatology	1.6	3.4	1.3	0.9	3.2	3.8	2.5	0.8	3.4	4.0	4.2
Administration	2.4	1.9	1.7	4.3	1.6	2.6	1.6	0.8	2.5	4.0	3.4
No. of students	127	267	229	234	251	156	122	125	119	152	118

because of any particular field for which it is well known, the interest preferences of students for each school (Table V) suggest certain differences which may be accounted for by differences in emphasis and curriculum among the schools.

In respect of the students' interest in general practice, there are striking differences between the schools. Some 74% of students at British Columbia rank general practice high, in contrast to 43% and 42%, respectively, at McGill and Manitoba. The relatively low interest in general practice at McGill is not, of course, surprising, but it is difficult to understand why Manitoba should be so different from the other Western schools, and from Dalhousie and Queen's.

Interest in other fields shows a surprising range of variation. The percentage of students ranking neurology in one of the three first places ranges from 12% at Queen's and British Columbia to 25% at Ottawa and Alberta. Psychiatry also has a wide range, from 15% at Alberta to over 30% at Laval and Montreal, while obstetrics, with only 17% support at McGill, achieves its height of popularity at Saskatchewan with 44%. Pediatrics reaches its peak at Manitoba and McGill (42% and 45%, respectively) but shows an interest index of only 22% at Laval.

Speculation as to the explanation for these variations and differences between schools is inhibited by the lack of other data and the "pilot" nature of the present data. Clearly, however, this is an interesting area for further research and would incorporate observations on the curriculum and functioning of the medical schools themselves.

DISCUSSION AND CONCLUSIONS

It is emphasized again that these results are based on a pilot study of a non-random sample of Canadian medical students. Furthermore, the instrument used to gauge the students' interest in the various fields of medical practice had a number of shortcomings both in respect of its utilization and in the interpretation of the resulting data. Nevertheless, the differences between men and women students, between first-year and fourth-year students, between married and single students, and between the students of the individual Canadian medical schools suggest profitable lines of research.

Two major problems were encountered in the method employed in this study. The first concerns the difficulty in which a student finds himself in being forced to rank a number of fields in which he is equally interested (or disinterested) or in being forced to make a first choice when in fact he has not yet made up his mind. A pilot study was carried out in 1965 using a method in which the student is required to rank each field in turn on a scale; a preliminary analysis suggests that this method is easier for the student to handle, is simpler to analyze and provides a more valid picture of the student's interests.

The second problem concerned the relationship between "interest" and intention to enter the field. It is tempting to conclude that interest in a field will lead to a decision to enter it and to interpret the data presented here in that way. In the pilot study carried out in 1965, an attempt was made to correlate interest in a field with the intention to enter it; the measurement of this parameter may provide interesting insights into the psychology of the medical student.

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