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Myers–Briggs Type and Medical Specialty Choice: A New Look at an Old Question

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Background: Career development of health professionals is one of many uses of Myers–Briggs Type Indicator (MBTI), with many studies reported from the 1950s. Since 1977, no large-scale effort to collect data on the medical school population has been reported.

Purpose: To determine (a) changes in MBTI profiles of medical students over time, (b) differences between the profiles of men and women and the effects of the increased number of women in medical school, (c) possible associations between type and career choices, and (d) possible type differences of graduates selecting primary care and specialties.

Method: Twelve U.S. schools with data on 3,987 students contributed to a database of their graduates' MBTI type and specialty choice at Match.

Results: Compared with data from the 1950s, the type distribution of physicians has remained fairly stable, save for a trend toward more judging types. Women in medicine today are more representative of the general population on the feeling dimension than earlier, when medicine was more male-dominated. Women are more likely than men to choose primary care specialties, as are those with preference for introversion and feeling. Feeling types choose Family Medicine significantly more often than thinking types; male, extraverted, and thinking types choose surgical specialties. Of those selecting nonprimary care, male, extraverted, and thinking types choose surgical specialties significantly more than women, introverted, and feeling types.

Conclusion: Type remains useful for understanding how some aspects of personality relate to medical specialty choice.

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The Myers–Briggs Type Indicator (MBTI) is a psychometric test developed in the 1950s by Isabel Briggs Myers and Katherine Briggs. Based on the work of Swiss physician/psychologist C. G. Jung, the MBTI is concerned with the differences that result

from the way people perceive information and prefer to use that information. Considered sound and well-validated,¹ the MBTI is the most widely used psychological instrument in the world. Career development of health professionals is but one of its many

We gratefully acknowledge the 12 medical schools that contributed data to this article: University of Connecticut, Dartmouth College, University of Kansas, Loma Linda University, Louisiana State University in New Orleans, Morehouse University, University of New Mexico, University of North Carolina, University of Oregon, University of Pittsburgh, University of Tennessee, and University of West Virginia. In addition, we thank Karl Cambre for valued advice on statistical table design.

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uses. In brief, the four dimensions measured by the MBTI are the following:

1. Extraversion or Introversion (E-I). The extravert's interests focus on the outer world of action, objects, and persons, whereas the introvert's interests focus on the inner world of concepts and ideas.

2. Sensing or Intuition (S-N). The sensing person collects information from the immediate, real, practical facts of life, whereas the intuitive person sees the possibilities, the relationships, and the meaning of experience.

3. Thinking or Feeling (T-F). The thinker makes judgments objectively and impersonally, considering the causes of events and where decisions may lead. The feeler makes judgments subjectively and personally, weighing values of choices and how they affect others.

4. Judging or Perceiving (J-P). The judger prefers to live in a decisive, planned, and orderly way, so as to regulate and control events. The perceiver lives in a spontaneous, flexible way, aiming to understand life and adapt to it.

Individuals receive a score on each dichotomous dimension, resulting in a four-letter "type" (e.g., ENFJ); because there are four dimensions, there are 16 possible types. Each dimension is assessed on a continuous scale, with the resultant score indicating the strength and consistency of preference. Much like having a dominant hand, type indicates a natural inclination or a preferred process but assumes that an individual uses his or her nondominant traits as well.

Certain types seem to self-select into activities. Type theory postulates that "the intrinsic appeal of any kind of work (as distinguished from external advantages such as money or status) lies in the chance to use the mental processes one likes best, in the way one likes to use them"² (p. 2). Myers collected type data on 5,355 students from 45 medical schools in the 1950s during the development of the MBTI. In 1963, Myers used the American Medical Association Directory to determine if type differences were associated with the specialty choice of the study subjects.² Despite the fact that the 16 types are not evenly distributed in the general population,³ Myers found that all MBTI types were admitted to medical school in approximately equal numbers. Because medicine is a remarkably diverse field, Myers concluded that it has appeal for—and gains strength from—all psychological types.⁴

During the 1960s and 1970s, a composite of 7,190 medical students was tested by Myers and McCauley.⁵ Some shifts in frequency were noted: There were more intuitive (62%), more feeling (58%), and more judging types (58%), with only a small difference on the E-I scale (I = 52%).

Since 1977, there had been no large-scale effort to collect data on the medical school population. Some studies, usually limited to one school⁶ or to one spe-

cialty,⁷ have been undertaken. But a more comprehensive analysis involving all specialties and a large number of students from geographically diverse locations had not been done. Moreover, there have been dramatic changes in the health care environment—most notably, the increase in the number of women and minorities who have entered medicine, the development of new specialties, the numerous, ongoing innovations in the way medicine is practiced, and possible differing motivations for those entering the profession. The time seemed propitious to repeat the original study by collecting data from many schools over a broad geographical area and relating MBTI with specialty choice at Match (residency obtained through the Early Specialty Match, the Military Match, or the National Residency Matching Program).

This retrospective and descriptive study seeks to determine (a) changes in the MBTI profile of the medical student population over time, (b) differences between the MBTI profiles of men and women and the effects, if any, of the increased number of women in medical school, (c) possible associations between particular types and medical career choices, and (d) possible type differences of graduates selecting primary care and specialties. The study was undertaken to provide additional information to medical students as they go through the career selection process.

Method

In spring 1994, all U.S. ($n = 125$) and Canadian ($n = 16$) medical schools were surveyed by mail to determine (a) if the MBTI was being used, and, if so, (b) years for which data had been collected, and (c) willingness to share data on type and specialty choice of graduates. Sixty-nine questionnaires (49%) were returned. Twenty-one schools had data that they would share. In nine instances, the school's data were not available, because the person who had compiled type data had left the institution or because the graduation years were not ones included in this study. Ultimately, 12 U.S. schools with data on 3,987 students contributed to the creation of a database of students who had graduated between 1983 and 1995. The schools represented a mix of nine public schools and three private institutions across the United States.

Most, but not all students had taken the MBTI during their 1st year of medical school. At one author's school (Louisiana State University School of Medicine, New Orleans), the type indicator is introduced each year as part of freshman orientation. Individual reports are given to the students within a week of orientation, at which time a scheduled class includes an informal introduction to type theory and an explanation of the 16 basic personality types. Although the type distribution of the class is shared, only the student and a faculty member (Mollie M. Wallick) who serves as a

1st-year course director and informal advisor know individual type. During the students' freshman and sophomore years, students may choose to consider the relation their personality type has with their study skills, exam-taking, or decision-making. In the junior year, individual personality types are reintroduced by the same faculty member during periodic workshops on the selection of medical specialties.⁸ At any time, students may retest on the MBTI if they feel that their personality profile is in some way inaccurate. In the case of occasional retesting, remarkable stability of traits has been demonstrated.

All data in this study were confidential and were furnished with identification numbers that could only be traced through the contributing school. Records from each school comprised graduation year, gender, MBTI type, and medical specialty at the time of Match. When further subspecialization was planned, this information was used in the analyses. Three schools provided complete data on all students for each year. Six schools provided data that were not inclusive of all students but represented a majority of students in each class. Three schools furnished data from a self-selected population who chose to participate in an MBTI exercise sponsored by the medical school.

Originally, the study was to include the graduation years of 1988 through 1995. However, data were available for 223 students who graduated from 1983 through 1987. These data were compiled separately and compared with the 1988–1995 data as independent samples. No significant differences were found, and the two data sets were merged for further analyses.

Analyses

Logistic regressions were performed on three different samples of data (the Myers original data, the Myers–McCaulley data, and our own), each from different decades (1950s, 1960s–70s, and 1980s–90s). The first set of regressions examined whether any of the four type dimensions (or their interactions) would explain the differences in Proportion \times Gender. The second set of regressions examined only the 1980s–90s sample to explore whether gender, type, or both would, in turn, predict choice of specialty. Specialty choice was analyzed sequentially; that is, the first decision point analyzed whether gender, type, or both predicted the selection of primary care versus nonprimary care. The second decision point analyzed whether gender, type, or both predicted the subsequent decision, given either primary or nonprimary care. For those having selected primary care, the question became whether Family Medicine or other primary care areas were predicted. For those not having selected primary care, the question became whether surgical or nonsurgical specialties were predicted. Hence, one primary and two secondary decision points were analyzed

as a function of gender, type, or both. (See Table 1 for this study's listing of primary care, nonprimary care, surgical, and nonsurgical specialties.)

Results

Changes in MBTI Profiles Over Time

In comparing Myers' original data from the 1950s, Myers' and McCaulley's from the 1960s–70s, and this study's 1980s–90s data, the most obvious change over time is the number of women represented: from 6% in the 1950s to 40% in the most recent sample. A second finding is the shift on the T–F dimension: The original sample and the current sample are similar, each with a preponderance of thinking types (54% and 55%, respectively), whereas the 1960s–70s sample indicates a majority of feeling types (56%). Finally, on the J–P dimension, in the earliest sample there was a majority of perceiving types (53%), whereas the latter two samples show a shift to judging types (58% and 59%).

Gender \times Type Associations

The first set of logistic regressions examined whether gender and type were related. Three regressions were performed, one for each time period. Although there were some statistically significant associations between gender and type, the only one accounting for more than 1% of the variance was Gender \times T–F. For the 1950s sample, thinking types predominated for men (55%), whereas feeling types predominated for women (58%). For the 1980s–90s sample, this pattern was repeated: 62% of men were thinking types and 57% of women were feeling types. Other type associations with gender did not show differences of more than a few percentage points in the three large samples, and none accounted for more than 1% of the variance in the model.

Primary Care Versus Nonprimary Care as a Function of Gender and Type

The analyses of the 1980s–90s data set (see Table 2) incorporate gender and type simultaneously in determining if they are associated with specialty choice. This is conceived as a two-stage decision model: first, primary care versus nonprimary care; and second, given a choice of primary care, Family Medicine versus other primary care areas (Internal Medicine and Pediatrics), or given a choice of nonprimary care, surgical versus nonsurgical specialties. A key finding is that gender was the strongest predictor in the model.

Table 3 indicates that women chose primary care more often than nonprimary care residencies, whereas men chose primary care at almost the same rate as

Table 1. *Classification of Specialties*

Specialty	Primary Care	Nonprimary Care	
		Surgical	Nonsurgical
Anesthesiology			X
Cardiovascular Disease			X
Cardiovascular Surgery		X	
Child Psychiatry			X
Dermatology			X
Diagnostic Radiology			X
Emergency Medicine			X
Family Practice	X		
Gastroenterology			X
General Surgery		X	
Infectious Disease			X
Internal Medicine	X		
Neurology			X
Neonatal/Perinatal Medicine			X
Neurosurgery		X	
Obstetrics/Gynecology			X
Maxillofacial Surgery		X	
Radiology			X
Ophthalmology		X	
Orthopedic Surgery		X	
Otolaryngology		X	
Psychiatry			X
Pediatrics	X		
Pediatric Neurology			X
Pediatric Psychiatry			X
Pediatric Surgery		X	
Physical Medicine & Rehabilitation			X
Preventive Medicine			X
Plastic Surgery		X	
Pathology			X
Pulmonary Medicine			X
Radiology			X
Urology		X	

nonprimary care. Two of the four type dimensions also showed significant differences: Although thinking types selected primary and nonprimary care at about the same rate, feeling types were significantly more likely to choose primary care. Similarly, although extraverts chose primary and nonprimary care at about the same rate, introverts were significantly more likely to select primary care. There was a nonsignificant difference in the percentage of sensing versus intuitive and judging versus perceiving types choosing primary care residencies. It is important to note that all types and both genders are represented in all specialties.

Family Medicine Versus Other Primary Care Areas as a Function of Gender and Type

Among those who chose primary care, the final model for predicting Family Medicine versus other primary care areas resulted in only one significant predictor, T–F, although it did not account for more than 1% of the variance (see Table 2). As shown in Table 3,

feeling types chose Family Medicine residencies at a significantly higher rate than did thinking types. Nonsignificant differences were found in the percentage of women versus men, sensing versus intuitive, extravert versus introvert, and judging versus perceiving types in Family Medicine residencies.

Surgical Versus Nonsurgical Specialties as a Function of Gender and Type

Among those who chose nonprimary care, the final model for predicting surgical versus nonsurgical residencies was composed of three significant predictors: gender, E–I, and T–F, with none of these significant effects accounting for more than 1% of the variance (see Table 2). Table 3 indicates that men chose surgical residencies at a significantly higher rate than did women. Feeling types selected surgical residencies at a significantly lower rate than did thinking types. Finally, introvert types chose surgical residencies at a significantly lower rate than did extravert types. There

Table 2. Log Linear Regression Statistics for Predicting Two Levels of Medical Residency Choice as a Function of Type and Gender

Level I Choice: All Residencies: Primary Care Versus Nonprimary Care ^a							
Factor	χ^2	df	p	t	p	R	R ²
Gender	54.39	1	<0.001	41.72	<0.001	0.086	0.007
MB Main	41.63	4	<0.001				
E-I				11.61	<0.001	0.042	0.002
S-N				3.12	0.077	-0.015	0.000
T-F				28.19	<0.001	0.070	0.005
J-P				0.38	0.540	0.000	0.000
Level II Choice: Primary Care Residencies: Family Medicine Versus Other Primary Care ^b							
Factor	χ^2	df	p	t	p	R	R ²
Gender	1.58	1	0.210	2.78	0.095	-0.017	0.000
MB Main	7.46	4	0.110				
E-I				0.40	0.530	0.000	0.000
S-N				0.01	0.910	0.000	0.000
T-F				7.00	0.008	0.044	0.002
J-P				0.12	0.730	0.000	0.000
Level III Choice: Nonprimary Care Residencies: Surgical Versus Nonsurgical ^c							
Factor	χ^2	df	p	t	p	R	R ²
Gender	69.25	1	<0.001	53.83	<0.001	-0.149	0.022
MB Main	33.10	4	<0.001				
E-I				11.65	<0.001	-0.064	0.004
S-N				1.32	0.250	0.000	0.000
T-F				19.45	<0.001	-0.087	0.008
J-P				0.42	0.520	0.000	0.000

Note: Data reflect analyses of the 1980s–90s cohort, representing 3,910 medical students on whom both Myers–Briggs Type Indicator and residency choice information were available. MB Main = Myers–Briggs main effect; E–I = extraversion or introversion; S–N = sensing or intuition; T–F = thinking or feeling; J–P = judging or perceiving.

^aN = 3,910. ^bn = 2,096. ^cn = 1,814.

Table 3. Percentage of Graduates by Type and Residency Choice, 1980s–90s Cohort

MBTI Dimension/Gender	All Specialties ^a		Primary Care Specialties		Nonprimary Care Specialties	
	Primary ^b	Nonprimary ^c	Family Medicine	Internal Medicine & Pediatrics	Surgical	Nonsurgical
E	51	49	30	70	40	60
I	56	44	31	69	35	65
S	55	45	30	70	40	60
N	53	47	31	69	36	64
T	49	51	28	72	43	57
F	59	41	33	67	29	71
J	54	46	31	69	37	63
P	53	47	31	69	28	72
Male	49	51	32	68	44	56
Female	61	39	29	71	24	76

Note: In the case of these three comparisons, breakdowns add to 100% on each Myers–Briggs type dimension and on gender. See Table 2 for significant differences of numbers bolded above. MBTI = Myers–Briggs Type Indicator; E = extraversion; I = introversion; S = sensing; N = intuition; T = thinking; F = feeling; J = judging; P = perceiving.

^aN = 3,910. ^bn = 2,096. ^cn = 1,814.

was a nonsignificant difference in the percentage of sensing versus intuitive and judging versus perceiving types in surgical residencies.

Summary: The Two-Stage Decision Model

In general, although there were a few significant effects on choice of residency for the 1980s–90s cohort, only gender showed an appreciable effect, and this effect was only in predicting the first sequential choice: surgical versus nonsurgical residencies. Among the other significant, but weak, predictors, gender and E–I each predicted whether primary care residencies were chosen, as well as which type of nonprimary care residencies were chosen. Neither, however, predicted which type of primary care residencies were chosen. The T–F dimension was a significant, but weak, predictor for all three dichotomous choices; S–N and J–P failed to significantly predict any choices.

It should be emphasized that no interactive combination of the four dimensions was either necessary or useful in predicting choices. In fact, to use combination descriptions even at the two-way level (e.g., ET), much less than at the four-way level (e.g., ESTJ) would be not only unnecessary but also misleading. There were no significant synergistic or interactive patterns that required the inclusion of any combination of factors other than as additive effects in the model.

Analogously, there were no significant predictive associations that were gender-dependent. That is, none of the four type dimensions differentially predicted residency choices for men versus women; nor were there any higher-order synergistic patterns among the four dimensions that significantly predicted residency choices for one gender differentially from the other gender. In the case of primary care versus nonprimary care and surgical versus nonsurgical residency, T–F and E–I predicted choice significantly for both genders, in the same direction and with the same strength.

Discussion

Despite the enormous changes in the practice of medicine over the past 40 years and the dramatic increase in the number of women, the distribution of type has remained fairly stable. The increase in feeling types in the 1960s–70s sample may reflect the culture of the period, which was, perhaps, more idealistic and service-oriented than either the previous or present culture.

The shift from perceiving in the earliest sample to judging in the latter two samples may be associated with the increases in technology and information in all medical fields. Whereas a physician in the 1950s used more perceiving skills to examine and diagnose, today's physicians order tests and then interpret (judge and deduce) results, rather than relying on more induc-

tive processes. The amount of bureaucracy, paperwork, and organizational involvement necessary to practice medicine today may also be associated with a preference for judging.

The most interesting result of the Gender \times Type analyses for the three time periods was the lack of significant findings, with one notable exception. For only in the current sample was there an association that accounted for more than 1% of the variance, and this was in the direction that would be predicted by much of the literature on type. Specifically, there was an association between being female and a preference for feeling. It should be noted that this association is descriptive of the population in general, despite the fact that only this one subscale is weighted differently for men and women to account for women's greater preference for feeling and men's for thinking. (None of the other subscales have been shown to have gender differences.) It is intriguing that this difference appeared only in the current sample. It is likely that women who entered medicine earlier had to be more like men on this dimension (more tough-minded thinking types) to feel comfortable and accepted in what was, at the time, a very male-dominated field. In the current sample with 40% women, perhaps a critical mass has been reached so that all types of women feel comfortable entering medicine. The data are, therefore, more typical of the general population on this dimension.

In looking at the association between type and specialty choice, the first question addressed an examination of type and choice of primary care versus nonprimary care. This analysis revealed that three factors were statistically significant in predicting primary care: gender, E–I, and T–F. Being female, introverted, and feeling were associated with choosing primary care. (It is noteworthy that gender and T–F were significant independently even though they were also associated in the sample as a whole.) This finding is not surprising in that primary care is highly service-oriented; money and prestige are not as likely to be motivating factors for primary practitioners. The rewards of long-term relationships with patients and families are consistent with preferences for feeling and introversion. Another factor that may attract women to primary care is the requirement of fewer years in residency and the ability to devote time to a family sooner than a longer residency would permit.

A further analysis of primary care that looked at those who chose Family Medicine versus other primary care areas revealed an additional association between Family Medicine and feeling. This is also intuitively understandable, as Family Medicine is generally viewed as less technologically oriented than other areas of primary care (e.g., Internal Medicine). Again, the continuity with patients and the nurturing role of the family physician would be appealing to those with a preference for feeling.

The subsample of graduates who chose nonprimary care was further divided into those who chose surgical versus nonsurgical specialties. This analysis also yielded the same three significant predictors: gender, E-I, and T-F. Once again, the direction of the associations makes intuitive sense, with those choosing surgical specialties more likely to be male, extraverted, and thinking types. Gender is again an independent predictor, possibly because men are more inclined to undertake a long residency that remains male-dominated. Regardless of gender, surgical specialties are preferred by those with extraverted and thinking preferences. This, too, would be expected because of the nature of surgical practice. Many patients are seen, but, in general, there is little continuity with patients over time. In addition, the decision-making process in surgical specialties would heavily favor those with a preference for thinking.

There are several limitations inherent in this study. First, although the sample is relatively large and comes from a broad range of geographic areas and a mix of public and private institutions, there is the possibility that it is not fully representative. The general consistency with previous studies would argue against this, but it cannot be ruled out. Second, in spite of a suggestion that preferences may change during medical training,⁹ there is general agreement in the literature¹⁰ and in the authors' experience that type is fairly stable over time. In this study, not all students in the sample took the MBTI in the same year of medical school; there is a possibility that "noise" was introduced by the fact that students took the test at different points in their medical education. Third, some schools' data represented entire classes whereas others' data included only portions of a class. Hence, selective bias may have been introduced, if students who did not take the MBTI were somehow different from those who did.

Finally and most important, the analysis of specialty choice was contingent on students' choice at the time of the Match. Many who had not initially planned to subspecialize may have chosen to do so later. Ideally, to look at medical specialty and type, an analysis of physicians in practice would yield more accurate data. Yet, it is known that residents and physicians who change specialties are far more likely to move into an area in which their type is more prevalent than it was in their initial choice.⁴ Thus, one would expect that the results reported here would be strengthened by examining physicians later in their careers.

Conclusion

Although women in medicine have increased from 6% in the 1950s to 40% in the 1980s-90s, the type distribution of physicians has remained fairly stable over time, with the only consistent change being a trend to-

ward a greater proportion of judging types. The current association between the feeling dimension and being female, absent in prior samples, may reflect the fact that women in medicine today are more representative of the general population than they were when medicine was more male-dominated.

In this study, women were more likely than men to choose primary care specialties, as were those with preference for introversion and feeling. Of those graduates who selected primary care, only feeling types chose Family Medicine more often than thinking types. Of those who selected nonprimary care, there was a higher proportion of male, extraverts, and thinking types in the surgical specialties.

This study demonstrates that the MBTI remains a useful tool in understanding some aspects of personality and how they relate to choice of medical specialty. The results should not be used in isolation. Students and their advisors are cautioned about over-valuing type in the career selection process. Although type should never be the determining factor in specialty selection, it may be used to ascertain if the students' type will be representative of, or underrepresented in, their chosen specialty.

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