

CATTELL'S SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE  
AS A PREDICTOR OF MEDICAL SPECIALTY CHOICE

by

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A Thesis Submitted to the Faculty of the  
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY  
In Partial Fulfillment of the Requirements  
For the Degree of  
MASTER OF ARTS  
In the Graduate College  
THE UNIVERSITY OF ARIZONA

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## ABSTRACT

Due to a recent shortage of primary care practitioners, an overabundance of some specialties, and a lack of physician services in rural and inner city areas, attempts are being made to ensure an adequate supply of physicians in necessary specialty areas. One approach is to try to determine, prior to medical school, what specialty a student will eventually choose. In this study, 129 medical students' personalities were assessed, based on Cattell's Sixteen Personality Factor Questionnaire, to determine if the results could be used to predict the students' specialty choice. Specialty choice was assessed at both Orientation and Graduation. The results showed some predictive ability with individual personality factors, but this ability did not persist between the two classes studied, or over time. The difference between this study and other studies assessing personality and specialty choice can be explained by the various statistical procedures, personality assessments, settings and sampling used in this kind of research.

## CHAPTER I

### INTRODUCTION

Considerable research in recent years has addressed the question of whether there is a shortage of physicians in the United States, and, specifically, whether there is a shortage of those physicians who become primary care practitioners. The percentage of physicians who were general practitioners dropped from 83% of those in private practice in 1931, to 36% in 1964, leading many to believe there is a shortage (Fein 1967). Others believe that not only might there be a shortage, but that problems are also caused by geographic maldistribution, with not enough physicians in rural areas and the inner cities, and an oversupply of specialists and subspecialists (Petersdorf 1975). In 1970 the National Congress on Health Manpower made several recommendations to alleviate this maldistribution, two of them being (1) to create incentives, both financial and intellectual, to encourage physicians to practice in deprived areas, and (2) to increase the influence of those medical school admissions criteria that favor those students who are from these areas, and who would be inclined to choose primary care and practice in these areas (National Congress on Health Manpower 1970).

To be able to predict in some way which incoming medical students would choose primary care, or particular specialties, would be extremely beneficial in helping to provide the physician services that are needed. Many attempts have been made to determine medical student

characteristics that can be used accurately to predict their eventual medical careers. Such variables as demographic background, scholastic aptitude, and personality factors have been assessed for their usefulness as predictors with varying degrees of success.

#### Demographic Background

The following demographic variables have been studied: ethnic origin; father's occupation; birth order; number of siblings; and type of undergraduate school attended (Monk and Thomas 1973). As an example of the results obtained by such studies, pediatricians most likely attended private colleges, have fewer physician fathers, and fewer siblings than the average. Surgeons attended nonprivate colleges and had more physician fathers than other specialties. They also had more siblings and were least likely to be of Jewish background. Psychiatrists had fewer siblings and were most likely to be of Jewish descent. General practitioners came from large families, went to nonprivate colleges, and their fathers were most likely physicians or manual workers.

Another study using demographic variables has found that students choosing psychiatry were more often of Jewish background, those choosing general practice came from small cities, and those choosing surgery came more often from a high socioeconomic level (Coker, Greenberg, and Kosa 1965).

#### Scholastic Aptitude

Several scholastic aptitude variables have been studied: medical school grade point averages (Donovan, Salzman, and Allen 1972);

and subscores from the Medical College Admissions Test (MCAT) (Donovan et al. 1972; Monk and Thomas 1973; Schumacher 1964). Surgeons have been found to have above average grades in medical school whereas pediatricians and general practitioners had lower than average grades (Monk and Thomas 1973). On the MCAT sub-tests Verbal Ability and Science Achievement, those choosing a part-time practice combined with teaching and research scored significantly higher than average and those choosing general practice scored significantly lower than average (Schumacher 1964).

#### Personality and Attitude

The most widely researched area of medical career prediction has been personality and attitude. Some instruments used for assessing various aspects of personality have been the Allport-Vernon-Lindzey Study of Values (Donovan et al. 1972; Schumacher 1963), the Edwards Personal Preference Schedule (Yufit, Pollock, and Wasserman 1969; Schumacher 1963), the Strong Vocational Interest Blank Scales (Schumacher 1963; Athelstan and Paul 1971), the California Authoritarian Scale (Coker et al. 1965), Christie's Machiavellian Scale (Coker et al. 1965), the Eysenck Personality Inventory (Mowbray and Davies 1971), and the Heist Omnibus Personality Inventory (Mowbray and Davies 1971).

Personality factors and attitudes toward various medical careers have most often been studied separately. Many researchers have attempted to determine how medical students felt about different medical specialties and whether this varied when related to the student's career choice.



When students were asked to select one specialty (surgery, internal medicine, psychiatry, or general practice) as being best described by each of a series of negative and positive traits the following characteristics resulted (Bruhn and Parsons 1964): Surgeons were thought to be domineering, arrogant, aggressive and full of energy, and concerned with their own prestige. Internists were assigned traits that showed a sensitivity to a wide range of factors when evaluating a given medical situation and an interest in intellectual problems. A psychiatrist was perceived as a confused thinker, emotionally unstable, and with an interest in intellectual problems. General practitioners were thought of as aggressive and full of energy, patient, interested in people, and with a friendly, pleasing personality. In general, those students choosing a particular specialty attributed the more positive characteristics to the chosen specialty and, overall, all the students considered most of these positive characteristics to be an accurate description of themselves.

A variety of results have developed from studies to determine if personality factors can be used to predict choices of specialty. One study showed that those who chose an academically oriented career over full-time practice had higher theoretical-artistic interests, higher dominance needs and social-welfare interests, and lower practical-economic interests. Those choosing a psychiatric career have higher social-welfare and theoretical-artistic interests than those who choose surgery, and lower practical-economic interests than those choosing surgery or internal medicine (Schumacher 1963).

Another study used the authoritarian personality (defined as one who prefers certainty of knowledge and routine in his work) and the Machiavellian personality (defined as one who prefers an easy work load, financial success and novelty of professional problems) to determine if certain specialty choices were distinguishable. The authoritarian personality is attracted to general practice in order to follow a routine and display a certainty of knowledge. He rejects psychiatry and internal medicine for the same reasons--he cannot expect certainty and routine in diagnosis or treatment. The Machiavellian personality is attracted to psychiatry because of the easier work load, the financial reward, and the constant new problems. He rejects general practice for the same reasons (Coker et al. 1965).

Six factor predicting specialty choice were developed in one study (Yufit et al. 1969), with some specialties having high loadings on individual factors. Those choosing internal medicine, obstetrics-gynecology, psychiatry, and general practice loaded high on the factor described as trusting, friendly, sympathetic, and understanding. Those choosing general practice loaded singly high on the factor described as realistic, evasive, and skeptical. Those choosing radiology, pathology, and ophthalmology had high ratings on dominance and narcissism, and those in general practice, obstetrics-gynecology, and pediatrics had low ratings on dominance and narcissism.

Another study of the Eysenck Personality Inventory indicated that surgeons and psychiatrists were more extroverted than internists, and internists were more neurotic than surgeons. Yet, according to

the Heist Thinking Introversion scale psychiatrists and internists were found to be more introverted than surgeons (Mowbray and Davies 1971).

### Summary

Some of these methods may be useful in describing differences among specialty choice but are far from offering a foolproof means of prediction. The best use of these methods is in combinations. The discovery of additional sources of prediction can only increase the usefulness of these methods.

### Hypothesis

The purpose of this study is to assess the usefulness of another possible predictor of specialty choice, Cattell's Sixteen Personality Factor Questionnaire (16PF), to see if it casts any additional light on the problem. The research hypothesis being examined is that specialty choice can be predicted from scores on the sixteen individual personality factors.

## CHAPTER II

### PROCEDURES AND RESULTS

#### Procedures

##### Sample

The sample for the study was drawn from the population of all incoming medical students from The University of Arizona. One might hope, however, that results of this study may be useful to other colleges of medicine in other areas of the United States. The sample consisted of the classes of 1977 and 1979 at the University of Arizona College of Medicine.

##### Instrumentation

Three instruments were used to assess the students's personalities and their choice of specialty. For personality assessment Cattell's Sixteen Personality Factor Questionnaire (16PF) was chosen (See Appendix A). The 16PF has been developed from numerous experiments resulting in the factor analysis of pre-determined personality dimensions (Cattell, Eber, and Tatsuoka 1970). It was chosen by the research staff in the Office of Medical Education at the University of Arizona College of Medicine, after a thorough review, as the one assessment which would be most useful for measuring normal medical students. In his review of the 16PF in the Sixth Mental Measurement Yearbook Lorr (in Buros 1965), considered it to be the best factor-based personality inventory available.

Two forms were used to determine the students' choice of specialty. The Class of 1977 received Hutchins' (1964) Career Choice Questionnaire, which originally accompanied another instrument for the Association of American Medical Colleges' Longitudinal Study of the Class of 1960 (See Appendix B). For the Class of 1979 and a second assessment of the Class of 1977, a short open-ended form was developed by the research staff in the Office of Medical Education at the University of Arizona College of Medicine (See Appendix C).

#### Data Collection

At the time of Orientation for each class, the students were presented with a packet of instruments from the Office of Medical Education. The packet included the 16 Personality Factor Questionnaire and one of the two questionnaires assessing specialty choice. They were told they were under no obligation to complete the forms and the results would be strictly confidential if they did. Everyone responded, without indication that the questions were not given serious consideration. They were also told that a profile of each student's personality from the 16PF would be available to each student, which probably increased the validity of the responses.

In April 1977, just prior to graduation, the Class of 1977 was given another packet of instruments at a time when they were taking National Board examinations. One instrument asked about their eventual choice of a specialty after their first year of residency. Again, filling out the forms was optional; the return rate was approximately 70%.

## Data Analysis

Although Sten scores were available the raw scores for the Sixteen Personality Factor Questionnaire was used for each of the personality factors, in order to maintain as much variance as possible.

The responses on the specialty choice questionnaires were assigned to one of six areas:

- 1) internal medicine-general
- 2) general or family practice
- 3) surgery and surgery subspecialties
- 4) psychiatry
- 5) pediatrics and pediatric subspecialties
- 6) other specialties

These six areas were chosen as a result of the previously cited research on specialty choice and personality and because of the author's interest as to whether there are distinguishable personality differences between these groups. Anyone whose specialty choice did not fit into one of the six areas was not included in the study.

Because the research hypothesis was concerned with predicting specialty choice from the 16 personality factors, six multiple regressions were performed. The 16 personality factors were the independent variables with each of the six specialty choice areas being used as a dichotomous dependent variable. The results were expected to show which of the 16 factors best predicted each of the six specialty choices.

For the purpose of cross-validation the data from the two classes as Orientation was analyzed separately. Further, the data

gathered for the Class of 1977 at Orientation were analyzed to see if a prediction by the 16PF was possible, and then the data for the same class at Graduation were analyzed, to see whether the results were similar.

### Results

Multiple regression analyses were conducted for each set of data separately (Class of 1977 at Orientation, Class of 1979 at Orientation, and Class of 1977 at Graduation), with five analyses in each set, using each of the specialty areas in turn as dependent, criterion variables (the psychiatry specialty area was eliminated from the study, as it had not more than one subject in any one set of data).

The results of these analyses showed that some of the 16PF factors were significant predictors of certain specialty choice areas. However, this predictive ability did not persist between classes, or between two times with the same class. Table I shows which factors are predictors of each specialty choice area, with a probability level of  $p \leq .10$ . The factors are entered in Table I according to their predictive ability, with the most predictive listed first. Descriptions of what each factor measures can be found in Appendix A. The signs give the direction of the prediction, (+) being toward the high score of the factor, and (-) being toward the low score.

The possibility of the number of subjects in each area being too small for accurate analysis was checked by collapsing the specialty choice areas to two, the original general or family practice being

TABLE I

## Predictive Factors of Five Specialty Choice Areas

	<u>General Internal Medicine</u>	<u>General Family Practice</u>	<u>Surgery &amp; Surgery Subspecialties</u>	<u>Pediatrics &amp; Pediatric Subspecialties</u>	<u>Other Specialties</u>
Class of 1977 at Orientation (n=62)	(n=9) Factor E(+) " I(+)	(n=20) Factor E (-) " N (-) " Q <sub>4</sub> (+) " B (-)	(n=8) Factor I(-)	(n=13) Factor I(+)	(n=12) Factor H(-)
Class of 1979 at Orientation (n=67)	(n=7) Factor C(+)	(n=39) Factor M(-) " B(+)	(n=2) Factor F(-) " B(-)	(n=7) Factor Q <sub>2</sub> (-) " Q <sub>4</sub> (+) " G (+) " Q <sub>3</sub> (-) " E (-)	(n=12) Factor H(+) " A(-)
Class of 1977 at Graduation (n=32)	(n=4) Factor G(+) " C(-) " F(+) " H(-)	(n=4) Factor C(-)	(n=5) Factor A(+)	(n=8) Factor E(-) " I(+)	(n=11) Factor Q <sub>4</sub> (-) " G (-)



labeled Primary Care, and general internal medicine, surgery and surgery subspecialties, pediatrics and pediatric subspecialties, and other specialties being grouped together and labeled Non-Primary Care. The results showed no better predictive ability between classes and over time than the original analyses. Table II shows the factors which are predictors for each of the three sets of data.

TABLE II

## Predictive Factors of Two Specialty Choice Areas

	<u>Primary Care</u>	<u>Non-Primary Care</u>
Class of 1977 at Orientation (n=62)	(n=20) Factor E (-) " N (-) " Q <sub>4</sub> (+) " B (-)	(n=42) Factor I (+) " E (+) " N (+) " Q <sub>3</sub> (+)
Class of 1979 at Orientation (n=67)	(n=39) Factor M (-) " B (+)	(n=28) Factor F(+) " B(-)
Class of 1977 at Graduation (n=32)	(n=4) Factor C(-)	(n=28) Factor Q <sub>4</sub> (-)

## CHAPTER III

### CONCLUSIONS

Based on the results of this study, the initial conclusion would be that personality factors are not a useful predictor of medical specialty choice. Yet the research cited in Chapter I indicates that personality characteristics have been found to vary with different specialties, and that personality can be used as a predictor of specialty choice. A comparison of the methodologies used in this study and those cited earlier might be useful in understanding possible explanations for differences in results.

Some areas of difference among studies of specialty choice and personality are (1) the point in the students' career that they are asked to indicate their specialty choice preference, (2) the numbers of subjects in each study and in each specialty choice area within studies, (3) institutional differences, (4) differences in the personality assessments, and (5) statistical procedures used in the studies.

#### Specialty Choice Measurement

Some questions have been asked about the reliability of using a freshman medical student's choice of specialty as an accurate indication of the area he will eventually enter. One comparison between a group of medical students' choice of specialty at Orientation and at the end of the freshman year showed a Phi coefficient

of only .48 (Sherwood 1977). In the present study a comparison of specialty choice for the Class of 1977 at Orientation and again at Graduation showed a Lambda of .16, indicating very little similarity between choices over this period of time. Two previously cited studies, however, collected specialty choice data during the freshman year. Yufit et al. (1969) chose to study personality and specialty choice during the freshman year, asserting that there is little specialty choice change between the freshman and senior years. When factor analysis results were used to predict specialty choice during residency after medical school, the predictions were accurate in 27 out of 118 cases, an accuracy level better than chance, but less than desirable for practical application.

Coker et al. (1965) approached the problem from a different viewpoint and found that specialty choice did change from the freshman to senior year, but changed in accordance with the students' personality factors; the authoritarian student tended to switch from other specialty choices to general practice, and the non-authoritarian student from general practice to other specialty choices.

Two other previously cited studies were more cautious in their faith in specialty choice reliability. Schumacher (1963) used data collected at the end of the first year of internship, observing that this was a limitation as there is no way of knowing if the specialty choice would change after internship. Mowbray and Davies (1971) did the study with medical school seniors, and then confirmed the results in what they considered a more realistic setting of postgraduates who had made a choice of specialty.

In summary, there is some disagreement about the validity of measuring specialty choice at several points in the student's medical education. Further investigation could determine whether any point in time earlier than several years after medical school is a valid indication of eventual specialty choice. A study is currently underway at The University of Arizona, to determine at what point in their medical career specialty choice is both the earliest available and the most valid assessment.

#### Sample Size

Another factor varying considerably among studies is the number of subjects. Because of the small numbers in this study's total sample, one specialty choice area had as few as two subjects, with the most common being seven or eight subjects for the two classes at Orientation, and four to five subjects for the Class of 1977 at Graduation. These small sample sizes restrict the possible variance in a given group, possibly making the correlations spurious. Three studies previously cited used large samples: 1649 subjects were used by Schumacher (1963), over 2500 subjects by Coker et al. (1965), and 1060 subjects by Monk and Thomas (1973). Yufit et al. (1969), however, had 190 subjects, and felt that one reason for the failure of his factor analysis to serve as a more sensitive discriminator was the small number of subjects in some of his specialty choice areas. Donovan et al. (1972) had 230 subjects and Mowbray and Davies (1971) had 215, with no reference made of problems because of sample size.

### Institutional Differences

Schools of medicine vary considerably in many factors that could possibly influence specialty choice. The subjects included in a medical curriculum, the role models provided by the faculty, the involvement of non-physician health professionals in health care, and the students' exposure to practicing physicians are but a few of these factors. It is widely known, but not always acknowledged, that schools differ in the status attributed to certain specialties--for example at one school family medicine may be viewed as a specialty for those unable to succeed in other fields, while at another school family medicine may be a highly regarded specialty having a unique body of important skills and knowledge. These prestige and status attitudes held by faculty and house staff undoubtedly are transmitted to students, with obvious effects upon their choice of specialty.

Another institutional difference, mentioned in the introduction, concerns the tendency for some schools, particularly those receiving state government support, to attract students from certain geographic locations--rural areas, for example, or underserved urban areas. The assumption underlying these special admissions is that these persons will eventually practice medicine in similar geographic areas, most probably in a primary care specialty. While the research concerning the validity of this assumption is mixed, there is some likelihood that a higher-than-chance proportion of students from special admissions programs will choose primary care specialties. An institution with such a program would clearly yield a disproportionate number of graduates with certain specialties.

The problem of institutional differences has not been clearly addressed in research concerning specialty choice. The samples in the studies cited earlier were drawn from a variety of locations from private to public institutions, in this country and abroad. Johns Hopkins University (Monk and Thomas 1973), the University of Rochester (Donovan et al. 1972), the University of Illinois (Yufit et al. 1969), and the University of Melbourne (Mowbray and Davies 1971) are examples of the broad distribution of institutions used in specialty choice research. Two studies dealt with the problem by sampling from a number of schools, Schumacher (1963) sampling from 18 medical schools, and Coker et al. (1965) sampling from 8 medical schools in different regions of the country. Procedures like these would seem to control for an institution's characteristics acting as confounding variables.

As an example of the way institutional characteristics may affect specialty prediction research, Coker et al. (1965) considered differences in the 8 medical schools in their study. Some schools were found to have a larger proportion of authoritarian students than others. There was a positive correlation between the proportion of authoritarian students in the 8 schools and the proportion of students choosing general practice, and a negative correlation between the proportion of authoritarian students and the proportion choosing internal medicine. Non-authoritarian students who generally choose specialties other than general practice, often chose general practice if they attend authoritarian schools. The authors found further that whether a school's students were generally authoritarian or non-authoritarian affected the time students took to choose a specialty.

Coker's research demonstrates clearly that the environment of a particular school could have important effects on specialty choice; in future studies of specialty choice, institutional characteristics must be considered and controlled.

### Personality Assessments

Previously cited studies used a variety of personality inventories measuring different aspects of personality. It is no surprise that these studies report different results, since there is no comparability among the dependent variables. Perhaps only certain aspects of personality correlate with, or are predictors of, specialty choice.

The Allport-Vernon-Lindzey Study of Values, used by Schumacher (1964) and Donovan et al. (1972) measures six variables: theoretical, economic, aesthetic, political, social, and religious values. The Edwards Personal Preference Schedule, used by Schumacher (1964), Donovan et al. (1972), and Yufit et al. (1969), on the other hand, measures needs for achievement, deference, order, exhibition, autonomy, affiliation, intraception, succorance, dominance, abasement, nurturance, endurance, heterosexuality, and aggression. Mowbray and Davies (1971) chose two aspects of the Heist Omnibus Personality Inventory--thinking introversion and complexity of thinking--and two aspects of the Eysenck Personality Inventory--extroversion and neuroticism. Coker et al. (1965) looked only at the aspects of personality measured by the California Authoritarian (F) Scale and Christie's Machiavellian Scale. Cattell's Sixteen Personality Factor Questionnaire, used in the present study, measures the 16 factors described in Appendix A. Clearly the



research using personality characteristics to predict specialty choice has employed a wide variety of definitions for "personality."

If, in fact, two or more personality inventories might be assessing the same aspects of personality, identical adjectives are not necessarily used, and it can only be speculated that, for instance, "dominance" or "autonomy" in the Edwards Personal Preference Schedule is the same as "assertive" or "self-sufficient" in the 16PF. In most cases, the comparability of any of these inventories is questionable, and could be a reason for the variation in results.

#### Statistical Procedures

A variety of statistical analyses have been used by those investigating personality's relationship to specialty choice. The range in complexity extends from Chi-square and t tests to multiple discriminant analysis. If the goal of the study is prediction, as in the case of the present study, the most appropriate analysis would be either multiple regression or discriminant analysis. One major difficulty with discriminant analysis is that it is a rather new procedure, and is therefore difficult for many to comprehend. This study used multiple regression instead of discriminant analysis to simplify the analysis, taking each specialty choice as a dichotomous dependent variable.

Cross-validation is a necessary part of the statistical treatment of a prediction model. None of the studies discussed previously, aside from the present study, crossvalidated the statistical analysis. Cross-validation is often ignored when sample sizes are small, but in

the case of many of the previously cited studies, sample size could not be an excuse.

Prediction models such as multiple regression and discriminant analysis are useful as group predictors, but should be viewed skeptically as predictors of individual behavior. Donovan et al. (1972) used their results to predict specialty choice for individual students. As this is not the purpose of these prediction models, such uses should be avoided.

Other studies did not approach the personality/specialty choice topic as a prediction question, but were concerned with what personality types would be satisfied with a given specialty choice. (Yufit et al. 1969 and Mowbray and Davies 1971). Yufit did a factor analysis on scores from the Edwards Personal Preference Schedule and then determined what were the specialty choices of those subjects who scored high on a given factor.

Some research studies of personality and specialty choice have utilized statistical techniques that are too simplistic for the complex variables being studied. For example, Mowbray and Davies (1971) used a series of t tests on pairs of means, causing potential lack of accuracy due to alpha slippage.

At another extreme, lesser known analyses have also been used for research on personality and specialty choice. Two examples are Generalized Distance Analysis (Schumacher 1964) and Mahalanobis  $D^2$  (Monk and Thomas 1973). It is impossible from the description of these analyses to determine their suitability for the study in question. Replication would be difficult with the information given.

Although it would seem logical that multiple regression or discriminant analysis should be used in a prediction study, most of the studies cited here used other analyses. This makes it impossible to compare the results of these analyses with one another, or with the present study.

#### Summary

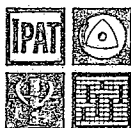
There are many ways that research studies on personality and specialty choice vary. The time for specialty choice assessment ranged, in the studies reviewed here, from the students' freshman year to their second year of postgraduate study. Sample sizes ranged from 129 to over 2500 subjects. Chi square, t tests, generalized distance analysis, multiple regression, and discriminant analysis have been used in various studies. The personality assessments measure different aspects of personality. The locations of these studies have varied from single colleges of medicine in the United States or Australia, to a sample from 18 schools. This variance points out the difficulty in making any comparisons between studies, and also explains the variance in the published results.

Nonetheless, further research is necessary to determine the effect of personality variables on specialty choice. The many attempts cited in this paper, including the present study, represent a variety of viewpoints on the problem. Although the problems cited in this chapter are numerous, the issue needs further consideration in the hope that solutions can be found with regard to physician shortage and maldistribution.

APPENDIX A

SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE

FORM A



1967-68 EDITION

FORM A

## 16 PF

**WHAT TO DO:** Inside this booklet are some questions to see what attitudes and interests you have. There are no "right" and "wrong" answers because everyone has the right to his own views. To be able to get the best advice from your results, you will want to answer them exactly and truly.

If a separate "Answer Sheet" has not been given to you, turn this booklet over and tear off the Answer Sheet on the back page.

Write your name and all other information asked for on the top line of the Answer Sheet.

First you should answer the four sample questions below so that you can see whether you need to ask anything before starting. Although you are to read the questions in this booklet, you must record your answers on the answer sheet (alongside the same number as in the booklet).

There are three possible answers to each question. Read the following examples and mark your answers at the top of your answer sheet where it says "Examples." Fill in the left-hand box if your answer choice is the "a" answer, in the middle box if your answer choice is the "b" answer, and in the right-hand box if you choose the "c" answer.

**EXAMPLES:**

- |   |   |
|---|---|
| <p>1. I like to watch team games.<br/>a. yes, b. occasionally, c. no.</p> <p>2. I prefer people who:<br/>a. are reserved,<br/>b. (are) in between,<br/>c. make friends quickly.</p> | <p>3. Money cannot bring happiness.<br/>a. yes (true), b. in between, c. no (false).</p> <p>4. Woman is to child as cat is to:<br/>a. kitten, b. dog, c. boy.</p> |
|---|---|

In the last example there *is* a right answer—kitten. But there are very few such reasoning items.

Ask *now* if anything is not clear. The examiner will tell you in a moment to turn the page and start.

When you answer, keep these four points in mind:

1. You are asked not to spend time pondering. Give the first, natural answer as it comes to you. Of course, the questions are too short to give you all the particulars you would sometimes like to have. For instance, the above question asks you about "team games" and you might be fonder of football than basketball. But you are to reply "for the average game," or to strike an average in situations of the kind stated. Give the best answer you can at a rate not slower than five or six a minute. You should finish in a little more than half an hour.
2. Try not to fall back on the middle, "uncertain" answers except when the answer at either end is really impossible for you—perhaps once every four or five questions.
3. Be sure not to skip anything, but answer every question, somehow. Some may not apply to you very well, but give your best guess. Some may seem personal; but remember that the answer sheets are kept confidential and cannot be scored without a special stencil key. Answers to particular questions are not inspected.
4. Answer as honestly as possible what is true of you. Do not merely mark what seems "the right thing to say" to impress the examiner.

**DO NOT TURN PAGE UNTIL TOLD TO DO SO**

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ANSWER SHEET: THE 16 P F TEST, FORM \_\_\_\_\_ (A OR B)

IPAT

EXAMPLES

1. I like to watch team games.  
 a. yes, b. occasionally, c. no.
2. I prefer people who:  
 a. are reserved, b. in between, c. no (false).  
 b. (are) in between, c. make friends quickly.
3. Money cannot bring happiness.  
 a. yes (true), b. in between, c. no (false).
4. Woman is to child as cat is to:  
 a. kitten, b. dog, c. boy.

1  a  b  c  
 2  a  b  c  
 3  a  b  c  
 4  a  b  c

NAME \_\_\_\_\_  
 First Middle Last

SEX \_\_\_\_\_ AGE \_\_\_\_\_ DATE \_\_\_\_\_ ★  
 (Write M or F) (Nearest Year)

RAW SCORE

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END OF TEST

Do not write here.

- NORMS USED:
- HS
  - Coll
  - Gen Pop
  - A
  - B
  - A + B
  - M
  - F
  - '61-'62
  - '67-'68

A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

E \_\_\_\_\_

F \_\_\_\_\_

G \_\_\_\_\_

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O \_\_\_\_\_

Q<sub>1</sub> \_\_\_\_\_

Q<sub>2</sub> \_\_\_\_\_

Q<sub>3</sub> \_\_\_\_\_

Q<sub>4</sub> \_\_\_\_\_



### 16 PF TEST PROFILE

FACTOR	Raw Score			Standard Score	LOW SCORE DESCRIPTION	STANDARD TEN SCORE (STEN)										HIGH SCORE DESCRIPTION		
	Form A/C/E	Form B/D	Total			1	2	3	4	5	6	7	8	9	10			
A					RESERVED, DETACHED, CRITICAL, ALOOF, STIFF (Sizothymia)	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	OUTGOING, WARMHEARTED, EASY-GOING, PARTICIPATING (Affectothymia)
B					LESS INTELLIGENT, CONCRETE-THINKING (Lower scholastic mental capacity)	•	•	•	•	•	•	•	•	•	•	•	•	MORE INTELLIGENT, ABSTRACT-THINKING, BRIGHT (Higher scholastic mental capacity)
C					AFFECTED BY FEELINGS, EMOTIONALLY LESS STABLE, EASILY UPSET CHANGEABLE (Lower ego strength)	•	•	•	•	•	•	•	•	•	•	•	•	EMOTIONALLY STABLE, MATURE, FACES REALITY, CALM (Higher ego strength)
E					HUMBLE, MILD, EASILY LED, DOCILE, ACCOMMODATING (Submissiveness)	•	•	•	•	•	•	•	•	•	•	•	•	ASSERTIVE, AGGRESSIVE, STUBBORN, COMPETITIVE (Dominance)
F					SOBER, TACITURN, SERIOUS (Desurgency)	•	•	•	•	•	•	•	•	•	•	•	•	HAPPY-GO-LUCKY, ENTHUSIASTIC (Surgency)
G					EXPEDIENT, DISREGARDS RULES (Weaker superego strength)	•	•	•	•	•	•	•	•	•	•	•	•	CONSCIENTIOUS, PERSISTENT, MORALISTIC, STAID (Stronger superego strength)
H					SHY, TIMID, THREAT-SENSITIVE (Threatia)	•	•	•	•	•	•	•	•	•	•	•	•	VENTURESOME, UNINHIBITED, SOCIALLY BOLD (Parrnia)
I					TOUGH-MINDED, SELF-RELIANT, REALISTIC (Harrtia)	•	•	•	•	•	•	•	•	•	•	•	•	TENDER-MINDED, SENSITIVE, CLINGING, OVERPROTECTED (Prenstia)
L					TRUSTING, ACCEPTING CONDITIONS (Alaxia)	•	•	•	•	•	•	•	•	•	•	•	•	SUSPICIOUS, HARD TO FOOL (Protension)
M					PRACTICAL, "DOWN-TO-EARTH" CONCERNS (Proxemia)	•	•	•	•	•	•	•	•	•	•	•	•	IMAGINATIVE, BOHEMIAN, ABSENT-MINDED (Autia)
N					FORTHRIGHT, UNPRETENTIOUS, GENUINE BUT SOCIALLY CLUMSY (Artlessness)	•	•	•	•	•	•	•	•	•	•	•	•	ASTUTE, POLISHED, SOCIALLY AWARE (Shrewdness)
O					SELF-ASSURED, PLACID, SECURE, COMPLACENT, SERENE (Untroubled adequacy)	•	•	•	•	•	•	•	•	•	•	•	•	APPREHENSIVE, SELF-REPROACHING, INSECURE, WORRYING, TROUBLED (Guilt proneness)
Q <sub>1</sub>					CONSERVATIVE, RESPECTING TRADITIONAL IDEAS (Conservatism of temperament)	•	•	•	•	•	•	•	•	•	•	•	•	EXPERIMENTING, LIBERAL, FREE-THINKING (Radicalism)
Q <sub>2</sub>					GROUP-DEPENDENT, A "JOINER" AND SOUND FOLLOWER (Group adherence)	•	•	•	•	•	•	•	•	•	•	•	•	SELF-SUFFICIENT, RESOURCEFUL, PREFERS OWN DECISIONS (Self-sufficiency)
Q <sub>3</sub>					UNDISCIPLINED SELF-CONFLICT, LAX, FOLLOWS OWN URGES, CARELESS OF SOCIAL RULES (Low integration)	•	•	•	•	•	•	•	•	•	•	•	•	CONTROLLED, EXACTING WILL POWER, SOCIALLY PRECISE, COMPULSIVE (High strength of self-sentiment)
Q <sub>4</sub>					RELAXED, TRANQUIL, UNFRUSTRATED, COMPOSED (Low ergic tension)	•	•	•	•	•	•	•	•	•	•	•	•	TENSE, FRUSTRATED, DRIVEN, OVERWROUGHT (High ergic tension)

Name: \_\_\_\_\_  
Comments: \_\_\_\_\_

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A sten of 1 2 3 4 5 6 7 8 9 10 is obtained by about 2.3% 4.4% 9.2% 15.0% 19.1% 19.1% 15.0% 9.2% 4.4% 2.3% of adults

APPENDIX B

CAREER CHOICE QUESTIONNAIRE

1. Check the type of medical career to which you believe you will ultimately devote all or most of your time. (Check one.)

TYPE OF CAREER

- 1. General Practice
- 2. Specialty Practice
- 3. Research and/or teaching
- 4. Combination of specialty practice, research and/or teaching.
- 5. Other (specify) \_\_\_\_\_

2. Indicate the type of practice in which you plan to engage. (Check one.)

- 1. Individual private practice
- 2. Partnership practice
- 3. Group practice
- 4. Hospital consultant (except federal hospitals)
- 5. Full-time teaching and research, (practice confined to medical school hospital[s])
- 6. Part-time teaching and research, part-time separate private or partnership practice.
- 7. Part-time teaching and research, part-time separate group practice.
- 8. Federal government service
- 9. Public health (with or without teaching and research.

3. If you plan to enter any type of career other than general practice, please indicate the area in which you plan to specialize. If your specialty area is not listed below but can be considered a subcategory within one of the fields that is listed, please check that field. Please check only one field.

- 06. Anesthesiology
- 07. Basic Medical Science
- 08. Dermatology
- 09. Internal Medicine-general
- 10. Neurology
- 11. Obstetrics/Gynecology
- 12. Ophthalmology
- 13. Otolaryngology
- 14. Pathology/Clinical Path.
- 15. Pediatrics
- 16. Physical medical and rehabilitation
- 17. Proctology
- 18. Psychiatry/Neuropsychiatry
- 19. Public health and preventive medicine
- 20. Radiology
- 21. Surgery - general
- 22. Surgery - neurological
- 23. Surgery - orthopedic
- 24. Surgery - plastic
- 25. Surgery - thoracic
- 26. Urology
- 27. Int. Med. - gastroenterology
- 28. Int. Med. - endocrinology
- 29. Int. Med. - cardiology
- 30. Int. Med. - pulmonary
- 31. Int. Med. - allergy

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APPENDIX C

SPECIALTY CHOICE QUESTIONNAIRE

(Given to the Class of 1979 at Orientation, August 1977)

Please name the medical specialties you are presently considering for your own medical career. Then show your current preferences for each.

Here are two examples:

50%	Family Practice	20%	Surgery
25%	Pediatrics	80%	Don't Know
25%	Radiology		

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(Given to the Class of 1977 prior to graduation, April 1977)

Although you know your assignment for next year, that area could differ from your ultimate specialty choice as you now predict it. Please give below the medical specialty(ies) that you are seriously considering as your eventual specialty upon completion of your residency. Then please weight each specialty to show your relative preferences, as in the following example:

40%	General Pediatrics
40%	Neonatology
20%	Pediatric Surgery

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