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# Updating the Medical Specialty Preference Inventory

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The original Medical Specialty Preference Inventory (MSPI) was published in 1976. This document describes the updating of the MSPI to the Medical Specialty Preference Inventory -2000.

## Background

The Medical Specialty Preference Inventory (MSPI) was developed to provide information to medical students and young physicians to aid them in their choice of a medical specialty. During medical school, almost all students select a residency in a specialty as the means of continuing their medical education following graduation from medical school. Some young physicians who entered a residency upon graduation decide after a year or two that they do not want to continue their training in that specialty and thus must select a different specialty. The choice of the initial or the different specialty can be a difficult one, and the purpose of the MSPI is to provide help in making that choice.

The basic rationale underlying development of the MSPI was to compare the preferences of medical students (or physicians) for certain factors in the practice of medicine with the description given by physicians in different specialties of how characteristic those factors were in the practice of their specialty. Thus, the MSPI relates what students want in medicine to what specialties have. The MSPI is based on the characteristics of the practice of specialties and not on the characteristics of the physicians who practice the specialties.

The MSPI was published in 1976 and consists of 199 items, all medical in content, which are answered by students using a 7-point scale to indicate the degree of preference for each item. The stem for each item is A practice in which I. Two examples of items are A practice in which I can make precise diagnoses and A practice in which I discuss death and dying with patients. The ratings on 108 of the 199 items are computer scored, and the remaining 91 items are filler items. The scoring program generates two sets of scores. One set consists of a preference score for each of 40 factors involved in the practice of medicine. The other set consists of an overall specialty preference score for each of 6 specialties. The 40 factors are in five general groups; diseases and problems, patients, care and treatment, knowledge, and procedures. The six specialties are internal medicine (MED), obstetrics/gynecology (OBG), pediatrics (PED), Psychiatry (PSY), surgery (SUR), and family medicine (FAM).

The factor preference score for each of the 40 factors is the mean of the student's preference ratings given to the items that define a factor. Each factor is defined by two to five items, and no item is used in defining more than one factor. The specially preference score for each specialty is based upon a student's preference score for each factor and the specialty characteristicness score for each factor as determined by the ratings of physicians in each specialty. The specialty characteristicness scores used in the scoring procedure were obtained by sending the 199 items to a random sample of 500 physicians in each of the six specialties with the request that they rate each item on a 7-point scale to describe how characteristic it is of the general clinic practice of their specialty. The mean of the characteristicness ratings of the physicians in a specialty on the items that define each factor was the specialty characteristicness score for the factor for that specialty. The scoring formula involving the student's 40 factor preference scores and a specialty's 40 characteristicness factor scores yielded the student's specialty preference score for that specialty. In

general, the closer the student's preference factor scores were to the specialists' characteristicness factor scores for a specialty, the higher was the student's specialty preference score for that specialty. Thus, a student who had a high preference for factors that were highly characteristic of a specialty and who also had low preference for factors that were not very characteristic of a specialty would get a high specialty preference score for that specialty.

A student who completed the MSPI received a score sheet containing his/her 40 factor preference scores numbered 1 through 40 and 6 specialty preference scores numbered 1 through 6. The score sheet was inserted into a 20 page booklet entitled "Report of the Medical Specialty Preference Inventory." The report contained an explanation of the factor and specialty preference scores, suggestions for interpreting the scores, and a profile of the 40 factor characteristicness scores for each of the six specialties.

## Updating the MSPI

The MSPI was published in 1976, over two and one half decades ago. The problem of specialty choice remains today, but it is possible that the characteristics of specialties upon which the MSPI is based have changed over time. That possibility prompted the present project which was designed to update the MSPI to make it more relevant to the present and the near future.

The fundamental requirement in the project was to obtain new empirical data on the characteristicness of the factors in each of the six specialties. To do this, a national random sample of 600 practicing physicians between the ages of 30 and 45 in each of the six specialties was identified by a national medical marketing service. Mailing labels -for the 3600 physicians were purchased for use in the project. Each physician was sent a cover letter explaining the project, requesting cooperation, and listing seven publications involving the MSPI (see Appendix). Also sent was a two page form containing the name of each of the forty factors preceded by the numbers 1 through 7, a definition of each factor, rating instructions, and, as an option, space for indicating the respondent's year of graduation from medical school, gender, and state of residence (see Appendix). A stamped addressed return envelope was provided. The rating instructions requested that the respondent circle one of the seven scale points next to each of the 40 factors to indicate the degree to which the factor is characteristic of his or her specialty. The cover letter indicated that the rating was to be made of the specialty in general and not of any subspecialty or any particular clinical setting. The materials were mailed in fall of 1998.

The response rates fell short of expectations. After adjusting for the relatively few undeliverable returns, the number and percent of responses received in 1998 and, in parentheses, the percent of responses received in 1975 were: MED, 52, 9% (25 %); OBG, 93, 16% (31%); PED, 116, 20% (35%); PSY, 81,14% (31%); SUR, 123, 21% (33 %); and FAM, 89, 15% (51%). The mean response rate in 1975 was 34.3 % and in 1998 was 15.8 %. Furthermore, in 1975 the respondents rated 199 items on the seven point scale whereas in 1998 they rated 40 factors on the seven point scale. The present upgrading of the MSPI was carried out using the data obtained.

A description of the respondents in each specialty consisted of the mean year of graduation, the percentage of men and women, the number of different states of residence, and the number making a comment (see Table 1).

Table 1. Characteristics of Respondents in Six Specialties

| | **Specialty** | | | | | |
|---|---|---|---|---|---|---|
| | **MED** | **OBG** | **PED** | PSY | SUR | FAM |
| Respondents | 52 | 93 | 116 | 81 | 123 | 89 |
| Yr. of Grad | | | | | | |
| Mean | 1987.04 | 1986.58 | 1986.13 | 1986.60 | 1985.69 | 1987.74 |
| Gender | | | | | | |
| Female | 19(36.5%) | 46(49.5%) | 61(52.6%) | 39(48.1%) | 24(19.5%) | 33(37.1%) |
| States | 24 | 34 | 39 | 34 | 41 | 40 |
| Comments | 9(17.3%) | 13(14.0%) | 17(14.7%) | 14(17.3%) | 14(11.4%) | 20(22.5%) |

The mean and standard deviation of the 1998 ratings for each factor given by the respondents in each specialty were computed. A weighted mean for each factor was computed (as explained later) based on the 1998 and the 1975 mean ratings for each factor for each specialty. These weighted means were used in updating the MSPI. As a sample of these values, Table 2 contains the three means for each of the six specialties for the first 5 of the 40 factors.

Table 2. Mean Rating of Five Factors by Six Specialties in 1998 and in 1975 and the Weighted Mean of the Two Means

| | Specialty | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MED | | | OBG | | | PED | | | PSY | | | SUR | | | FAM | | |
| Factor | ‘98 | ‘75 | wt | `98 | `75 | wt | `98 | `75 | wt | `98 | `75 | wt | `98 | `75 | wt | `98 | `75 | wt |
| 1 | 6.6 | 5.9 | 6.1 | 4.2 | 3.8 | 4.0 | 4.3 | 3.5 | 3.8 | 4.0 | 3.1 | 3.4 | 6.3 | 5.8 | 6.0 | 6.0 | 5.3 | 5.5 |
| 2 | 5.5 | 5.7 | 5.6 | 4.1 | 3.4 | 3.7 | 6.4 | 6.6 | 6.5 | 1.4 | 1.3 | 1.3 | 3.7 | 3.1 | 3.4 | 6.2 | 6.2 | 6.2 |
| 3 | 5.7 | 5.2 | 5.3 | 2.1 | 2.3 | 2.2 | 2.7 | 2.0 | 2.4 | 4.8 | 3.9 | 4.2 | 3.9 | 3.8 | 3.8 | 5.5 | 4.3 | 4.6 |
| 4 | 3.6 | 4.9 | 4.5 | 1.3 | 1.7 | 1.5 | 3.2 | 3.6 | 3.4 | 4.6 | 4.0 | 4.2 | 2.0 | 3.1 | 2.6 | 3.6 | 4.5 | 4.3 |
| 5 | 2.8 | 2.9 | 2.9 | 6.7 | 6.4 | 6.5 | 2.1 | 2.0 | 2.0 | 2.4 | 2.3 | 2.3 | 2.0 | 2.7 | 2.0 | 4.3 | 4.5 | 4.4 |

In order to estimate differences in the 1998 and 1975 rankings of characteristicness by the six specialties on each factor, Spearman rank order correlation coefficients (rhos) were computed for the mean ratings of the six specialties in 1998 and in 1975 on each factor. Table 3 contains the rho values for each of the 40 factors.

Table 3. Spearman Rank Order Correlation Coefficients Between 1998 and 1975 Mean Characteristic Ratings of 40 Factors by Six Specialties.

| Factor | Rho | Factor | Rho | Factor | Rho | Factor | Rho |
|---|---|---|---|---|---|---|---|
| 1 | 0.94 | 11 | 0.94 | 21 | 0.90 | 31 | 0.99 |
| 2 | 1.00 | 12 | 1.00 | 22 | 0.97 | 32 | 0.52 * |
| 3 | 0.94 | 13 | 0.87 | 23 | 0.89 | 33 | 0.94 |
| 4 | 0.81 | 14 | 0.94 | 24 | 0.94 | 34 | 0.93 |
| 5 | 0.83 | 15 | 0.94 | 25 | 1.00 | 35 | 0.94 |
| 6 | 0.93 | 16 | 0.97 | 26 | 0.81 | 36 | 0.93 |
| 7 | 0.83 | 17 | 0.94 | 27 | 1.00 | 37 | 0.94 |
| 8 | 1.00 | 18 | 0.94 | 28 | 1.00 | 38 | 0.93 |
| 9 | 0.99 | 19 | 0.99 | 29 | 0.99 | 39 | 0.94 |
| 10 | 1.00 | 20 | 0.99 | 30 | 0.94 | 40 | 0.61 ** |

* p=0.29 **p=0.20 All others p=0.05 or lower

As shown in Table 3, 32 (80 %) of the 40 factors had a rho of 0.90 or higher (p=0.015 or lower), clearly indicating little or, in the case of the rhos of 1.00, no change in the relative rankings of the six specialties on the 32 factors. The six next highest rhos ranged between 0.89 and 0.81, all significant between p= 0.02 and p= 0.05. The remaining two factors had rhos of 0.61 and 0.52, neither of which was significant at the p= 0.05 level.

On the basis of the findings in Table 3, the 38 factors with the highest rhos were retained because of the high degree of similarity between the 1998 and 1975 ratings, and the two factors with the lowest rhos were eliminated because of the lack of similarity between the two sets of rankings.

Based on the similarity of the responses of the physicians in the 1998 sample and those in the 1975 sample for these 38 factors, it was concluded that, as far as the MSPI is concerned, the practice of each specialty had hardly changed from 1975 to 1998. Thus, the 1998 mean factor ratings were combined with the 1975 mean factor ratings in proportion to the number of specialists responding in each year to produce the weighted means. Because of the high rhos and the larger number of specialists in the 1975 sample, adding the 1998 ratings would modify but not distort the 1975 ratings, thereby retaining the proven advantages of the original MSPI. Adding the 1998 ratings, however, would serve to incorporate ratings from the present time, thus updating the MSPI. Another positive result of combining the two sets of ratings is an increase in the total number of specialists upon which the MSPI is based from 1028 to 1582. By far the most important result of including the 1998 ratings is the increased confidence that the factors in the updated MSPI are in line with the current practice of the medical specialties.

As noted earlier, the MSPI contains 199 items of which 108 are scored items and 91 are fillet items. The number of items to be included in the updated MSPI was reduced to 150 in order to shorten the length while retaining both scored and filler items. The updated MSPI contains 104 scored items and 46 filler items. The 46 filler items were selected from among the 95 non-scored items on the basis of ratings by the four persons most directly involved in the updating of the MSPI. Each person rated each of the 95 items to indicate the advisability of keeping it as a filler item. The 46 items with the highest combined ratings were retained as the filler items. The 49 non-selected items were removed from their position in the listing of the 199 items in the MSPI, thus leaving the 150 items in the same relative position in the updated MSPI as they had in the original MSPI.

The updated MSPI is available only on computer. No paper version has been prepared. The computer program provides general information about the inventory, scoring, and reporting of scores. Instructions are given for completing the inventory followed by the 150 items, each with the 7-point desirability rating scale. The scoring process takes place immediately after the last item is rated and generates 6 specialty preference scores and 38 factor preference scores. The 10-page report is then printed. It contains a description of its contents, the student's 6 specialty preference scores with explanations, the name and description of the 38 factors along with the student's 38 factor preference scores, and the specialists' factor characteristicness scores on a specialty profile for each of the six specialties, and suggestions for interpreting scores.

## MSPI-2

The updated MSPI is named the Medical Specialty Preference Inventory - 2000.

# APPENDIX

1221 South Grand Blvd.

St. Louis, MO 63104

SAINT LOUIS

UNIVERSITY

Health Sciences Center

School of Medicine

David P. Wohl Memorial Institute

Department of Psychiatry

August, 1998

Dear Doctor:

In 1976, my colleague and I developed the Medical Specialty Preference Inventory (MSPI) for use by medical students and residents as an aid in selecting a medical specialty. Thousands of them have taken the MSPI, and several studies involving the MSPI have been published (see list on back).

The MSPI is based on the characteristics of six medical specialties as described by over 1,000 physicians in 1976. However, 1976 was more than two decades ago, and it is now necessary to update the MSPI to make it relevant to the practice of medical specialties today. Therefore, I am asking you and physicians in each of the six specialties to rate the characteristicness of the 40 factors that constitute the MSPI.

The enclosed rating form contains the name and a brief description of each of the factors plus the instructions for rating them. Do not base your ratings on any particular subspecialty or clinical setting but, rather, on the practice of psychiatry in general. A stamped addressed return envelope is enclosed for your convenience. No follow up request will be made.

Selection of a specialty is an important task for students and residents, so I urge you to contribute your experience to updating the MSPI. Thank you.

Sincerely,

George H. Zimny, Ph.D.
Professor Emeritus (Psychology)

GHZ/jmb

Enclosures

## Studies Involving the Medical Specialty Preference Inventory

Zimny, G.H. and Senturia, A.G., Medical specialty counseling: a survey. Journal of Medical Education, 48:336-342, 1973.

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Zimny, G.H., Iverson, K.V., & Shephard, C., A characterization of emergency medicine. Journal of the American College of Emeraencv Physicians, 8:147-149, 1979.

Zimny, G.H., Predictive validity of the Medical Specialty Preference Inventory. Medical Education, 14:414-418, 1980.

Zimny, G.H. and Shelton, B.R., Sex differences in medical specialty preferences. Journal of Medical Education, 57:403-405, 1982.

Savickas, M.L., Brizzi, J.S., Brisbin, L.A., and Pithtel, L.L., Predictive validity of two medical specialty preference inventories. Measurement and Evaluation in Counseling and Development. 21:106-112, 1988.

RATING FORM - PSYCHIATRY

Use the following Characteristicness Scale to make your ratings.

Circle *one* of the seven scale points next to each of the 40 factors to indicate the degree to which the factor is characteristic of psychiatry.

| **CHARACTERISTICNESS SCALE** | **FACTORS** |
|---|---|
| **low moderate high** | |
| 1 2 3 4 5 6 7 | Many major diseases - deal with many major diseases using many major diagnostic and treatment procedures. |
| 1 2 3 4 5 6 7 | Infectious diseases - treat infectious diseases including the use of the results of throat cultures. |
| 1 2 3 4 5 6 7 | Incurable & disabling diseases - deal with incurable and progressively disabling diseases: |
| 1 2 3 4 5 6 7 | Neural functions - deal with neural functioning using detailed knowledge of the nervous system and the results of EEG's and of brain scans. |
| 1 2 3 4 5 6 7 | Reproductive functions - deal with reproductive functioning using detailed knowledge of the reproductive system and the results of estrogen level tests and of fertility studies. |
| 1 2 3 4 5 6 7 | Complex problems - deal with complex diagnostic, treatment, and patient management problems. |
| 1 2 3 4 5 6 7 | Life threatening problems - deal with life threatening medical problems and emergency situations. |
| 1 2 3 4 5 6 7 | Psychosomatic problems - deal with psychosomatic problems using a detailed knowledge of emotion and of human personality and their influence on bodily processes. |
| 1 2 3 4 5 6 7 | Intimate personal problems - deal with intimate personal problems of patients. |
| 1 2 3 4 5 6 7 | Emotional reactions to illness - discuss with patients their emotions and feelings relative to illness, disease, and hospitalization. |
| 1 2 3 4 5 6 7 | Older age patients - deal with older patients including the use of nursing homes. |
| 1 2 3 4 5 6 7 | Child & adolescent patients - deal with children and adolescents as patients. |
| 1 2 3 4 5 6 7 | Dying patients - deal with dying patients including discussion of death and dying with them. |
| 1 2 3 4 5 6 7 | Many Patients Daily - treat many patients and many minor diseases each day. |
| 1 2 3 4 5 6 7 | Comprehensive care - provide comprehensive care through a broad range of medical services and constitute the point of entry into the health care system for patients. |
| 1 2 3 4 5 6 7 | Home health care - make provisions for home health care and use the services of visiting nurses. |
| 1 2 3 4 5 6 7 | Preventive care - provide preventive health care including the education of patients in proper health habits. |
| 1 2 3 4 5 6 7 | Genetic counseling - provide genetic counseling using detailed knowledge of genetics and of a patient's genetic history. |
| 1 2 3 4 5 6 7 | Marital & sexual counseling - provide counseling for marital and sexual problems. |
| 1 2 3 4 5 6 7 | Family planning counseling - counsel patients about family planning, contraception and abortion. |

* * * *Please Turn Over & Complete Page 2* * * *

| CHARACTERISTICNESS SCALE low moderate high | FACTORS |
|---|---|
| 1 2 3 4 5 6 7 | Discuss personal relations - discuss his/her emotional reactions to patients and try to help them improve their relationships with others. |
| 1 2 3 4 5 6 7 | Patient participation - provide treatment that involves active participation by the patient and the use of verb interactions and patient education. |
| 1 2 3 4 5 6 7 | Beneficial treatment results - provide .treatment that quickly produces obvious beneficial results. |
| 1 2 3 4 5 6 7 | Knowledge of skeletal & muscular systems - use detailed knowledge of these systems. |
| 1 2 3 4 5 6 7 | Knowledge of circulatory, respiratory, digestive & excretory systems - use detailed knowledge of these systems. |
| 1 2 3 4 5 6 7 | Knowledge of anatomy & physiology - use detailed knowledge of these systems. |
| 1 2 3 4 5 6 7 | Extensive precise work-ups - do extensive diagnostic work-ups using precise well-defined diagnostic procedures. |
| 1 2 3 4 5 6 7 | Lab tests - use the results of laboratory tests in diagnosis and treatment. |
| 1 2 3 4 5 6 7 | Proctoscopies and arteriograms - use the results of proctoscopic examinations and of arteriograms. , |
| 1 2 3 4 5 6 7 | Complex equipment - use complex equipment in diagnosis and treatment. |
| 1 2 3 4 5 6 7 | Use hands - use hands in obtaining diagnostic information and in treating patients. |
| 1 2 3 4 5 6 7 | Standard procedures - use mainly standard diagnostic and treatment procedures. |
| 1 2 3 4 5 6 7 | High risk procedures - use diagnostic and treatment procedures that involve high risk to the patient. |
| 1 2 3 4 5 6 7 | Outpatient operative procedures - do operative procedures on an outpatient basis and suture wounds. |
| 1 2 3 4 5 6 7 | Family information - use information about the patient's family and family history in dealing with medical problem. |
| 1 2 3 4 5 6 7 | Socio-economic information - use information about the patient's socioeconomic status and working conditions and about community conditions in dealing with the patient's medical problems. |
| 1 2 3 4 5 6 7 | Rehab services - use the services of rehabilitation treatment centers and of physical therapists. |
| 1 2 3 4 5 6 7 | Social services - use the services of community social agencies and of social workers. |
| 1 2 3 4 5 6 7 | Psychological services - use the services of psychologists and the results of psychological tests. |
| 1 2 3 4 5 6 7 | Referred to & give consults - receive referrals from other physicians and provide consultation to physicians in other specialties. |

*Year of graduation from medical school: 19_____* *Gender: □ Male □Female State of Residence:_____*

*Comments:* _____

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Please return to: George H. Zimny, Ph.D., Department of Psychiatry, Saint Louis University School of Medicine, 1221 South Grand Boulevard, St. Louis, MO 63104.