

THE SURGICAL PERSONALITY: A COMPARISON OF MEDICAL AND SURGICAL RESIDENTS WITH THE RORSCHACH*

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In comparison with internists, surgeons are thought to be more aggressive, rigid, insensitive, impersonal, hostile, extroverted, explosive, and possibly more energetic and ambitious. Many of these characteristics represent various manifestations of aggressiveness. The stereotype also refers to modes of interacting with people and to motivation or drive.

The task in the present study was to investigate whether or not the stereotype was accurate in a sample of physicians from both specialties. There was also an interest in other personality characteristics which might differentiate the two groups, particularly styles of thinking and problem solving.

Residents in surgery and internal medicine were selected for study because they were accessible, cooperative, and committed to their specialties. Although the choice of subjects at a particular point in the medical career imposes limitations on the extent to which the findings can be generalized, "real" differences should already be apparent at this time in training. Furthermore, data from the residency years can be compared with data on medical students and with practitioners beyond postgraduate training. The Rorschach was selected as the test instrument because of its flexibility in assessing information about emotions and their controls as well as particular cognitive styles in dealing with problems. Also the Rorschach is sensitive to unconscious factors as well as more manifest ones, particularly in the areas of ego control. The test has a long history in psychology, having been used for over four decades. Other investigators have used it² to specify the personality characteristics of people in various occupations, although the literature does not indicate any studies where it has been used to differentiate between medical specialties.

METHOD

The Rorschach Test was administered to all of the house officers on the Harvard Surgical Service of the Boston City Hospital. At the time of testing there were twenty subjects. These individuals ranged across the various levels of training from surgical intern to chief resident. Two clin-

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ical psychologists administered the tests, each taking half of the sample. Before the test was administered, the purpose of the project was explained and reasons for using the Rorschach Test were given. Each resident had an opportunity to decline to participate if he wished; all expressed willingness.

The following year the procedure was repeated with house officers on the Harvard First and Third Medical Services at the Boston City Hospital. Twenty-six subjects were available, and again they represented all phases of the program from medical intern to chief resident. As with the surgeons, no medical resident declined to take part.

The Rorschach protocols were scored by the individual examiner, using the scoring conventions which have been described by McArthur. The protocol scorings by one examiner (SK) were also scored by the second examiner (CM) to check for reliability. Almost no variations in scoring were found.

RESULTS

The two groups of subjects were compared on a series of standard Rorschach scoring categories and indices. For each variable a 2 x 2 contingency table was constructed as a first approximation of differences. As most of the Rorschach scores are continuous variables, the distribution was split either at a theoretically meaningful place or at the median. We had to be satisfied that the cutting point selected fell in the "normal" range for differentiating between high and low.

This procedure had the danger of being too arbitrary. It did provide a rapid first approximation of potential differences. When the resulting tables were ambiguous, or close to a level of statistical significance, a more discriminating procedure was used, either the standard t test or Fisher's Exact Test. We have reported the data in the 2 x 2 table form, and where statistical procedures other than Chi-square were also used we have so indicated.

Productivity in response to the Rorschach blots was remarkably similar for the two groups of subjects. Although the range of number of responses extended from 9 to 89, the means were close: 32.05 for the surgical residents and 34.58 for those in medicine. The two groups were split into high and low responsiveness, using 30 responses as a theoretically relevant cutting point for intellectually gifted subjects. The results are in Table 1. Once again, similarity was noted.

This first finding has importance for the others which follow, because many of the Rorschach indicators are related to the total number of responses. When two groups of subjects are alike on R (number of responses), the investigator can then be comfortable in comparing them on other scoring variables.

Another aspect of responsiveness is the amount of time used for each response, computed as the average time per response. A high T/R is often associated with undue deliberateness, or with depression; a very brief T/R with impulsiveness and lack of precision. The majority of subjects in the study were in the range of 15 to 40 seconds. When the groups were

divided in high and low, using 30 seconds as the cutting point, the distributions were almost identical. The results are shown in Table 2. The groups, therefore, could not be differentiated on the basis of deliberateness and decisiveness.

TABLE I

Number of Rorschach Responses by
Medical and Surgical Residents

		Surgical Residents	Medical Residents	
Number of Responses	< 30	10	13	23
	≥ 30	10	11	21
		20	24	44

$\chi^2 = 0.09$ N.S.

TABLE II

Time Per Response in Rorschach Protocols of
Medical and Surgical Residents

		Surgical Residents	Medical Residents	
Time per Response	> 30"	11	12	23
	< 30"	9	12	21
		20	24	44

$\chi^2 = 0.1$ N.S.

TABLE III

Rorschach Variables With No Significant Differences
Between Surgical and Medical Residents

Rorschach Score or Index		Surgical Residents	Medical Residents	χ^2	P
M	0,1,2	10	10	0.4	N.S.
	$\bar{>3}$	10	14		
FM	0,1,2	12	9	2.3	N.S.
	$\bar{>3}$	8	15		
M: FM	$M > FM$	10	14	0.4	N.S.
	$M < FM$	10	10		
(H)	0	9	10	0.05	N.S.
	$\bar{>1}$	11	14		
H	0,1,2	11	10	0.8	N.S.
	$\bar{>3}$	9	14		
FC	0,1	9	9	0.3	N.S.
	$\bar{>2}$	11	15		
F(ch)	0,1	13	11	1.6	N.S.
	$\bar{>2}$	7	13		

TABLE III continued

Rorschach Score or Index		Surgical Residents	Medical Residents	χ^2	P
Fch	0	6	6	0.1	N.S.
	≥ 1	14	18		
Fc'	0	13	10	2.4	N.S.
	≥ 1	7	14		
W:M	< 2	2	4	0.4	N.S.
	> 2	18	20		
M:EC	$M > \Sigma C$	8	14	1.4	N.S.
	$M < \Sigma C$	12	10		

SIMILARITIES

Table 3 contains a series of variables where no important differences occurred between medical and surgical residents. A word about the meaning of each is in order.

M, the score for human movement, is associated in Rorschach interpretation with the capacity for inner feeling. There was considerable variation in this among individuals, but high or low numbers of M scores were not characteristic of either experimental group.

FM is the score for animal movement, which ordinarily is associated with available energy in the personality. A well-balanced protocol will usually have from two to four animal movement responses unless it is a high response record, in which case more could be expected. There was a tendency for residents in medicine to have somewhat greater FM responses, but the difference did not reach statistical significance. This finding, incidentally, was in the opposite direction of what we anticipated on the

basis of the surgical stereotype, but the differences are within chance expectations.

The relationship between M and FM scores is an important index for Rorschach interpretation. Ordinarily one looks for a record in which both types of scores occur, and in which the FM scores predominate slightly. We divided the results into those cases where M was equal to or greater than FM, and those cases where M was less than FM. Medical and surgical residents were almost identical in the resulting table.

Two scores of the content of the responses are quite relevant to the topic of this paper. These scores represent the presence of human figures in the responses. An (H) is given to a response where the person is not living or is not real. The response may be the photograph of a person, or it may be a mythological person such as a gremlin or elf. These dehumanized responses ordinarily are given by people who have difficulty in relating to others and who deal with friends and peers on an impersonal level. From the surgical stereotype we predicted that surgical residents would be higher on (H) responses, but such was not the case. The second score is an H, which refers to living people. Individuals who give H responses usually have the capacity to form close relationships with others. The surgical stereotypes once again led to the hypothesis that surgical residents would be deficient in this capacity. The resulting table did not support the hypothesis.

Five of the Rorschach blots are made with brightly colored ink, alone or in conjunction with black ink. Individuals may respond to these blots by ignoring the factor of color, or else by making color the major determinant of the response. Use of color is usually interpreted as showing a capacity to respond to the environment in an emotional way. When the response involves color but also emphasizes the form of qualities of the blot, the interpretation is usually made that the individual has the capacity to respond in a reasoned and appropriate way to emotional stimulation from the environment. The surgical stereotype might suggest that surgeons would have fewer FC, or form dominated color responses, than would medical residents. The data did not bear out this assumption.

An individual may refer to the shading aspects of a blot, particularly in the achromatic portions. Shading responses can be diffuse and fuzzy, or they can be highly delineated. The latter kind are known as differentiated shading responses, and in the Binder system¹ are scored as F(ch). An individual who has a number of differentiated shading responses is usually one who has the quality of tact in dealing with other people. The surgical stereotype would predict that differentiated shading responses would occur more frequently among the medical residents. The data in the table are in this direction, but the trend is not strong enough to reach statistical significance.

Less differentiated shading responses can be indicative of the presence of anxiety in the personality. A score of ch is given to undifferentiated shading responses. When some form qualities are present, an F is added. Therefore, a response of Fch is usually found in records where there is the capacity for controlling anxiety when it appears. Individuals who have such scores are more able to cope with stress. There was no reason to predict that either of our groups of doctors would have more Fch scores, and indeed the score occurred as frequently in one group as in the other.

Reaction to the achromatic quality of the blot, that is, seeing things as black or dark gray, is scored as C'. Where the response emphasizes the blackness without much form content, there is the possibility of depression and the feeling of anomie.* Such individuals are also likely to have fairly strong mood swings. Therefore, a score in which achromatic color is used but where the response is dominated by form qualities is a healthier response. We had no reason to predict which of our experimental groups would be higher on FC'. There was a tendency for the medical residents to have more of these, but the Chi-square did not reach an acceptable level of significance.

The relationship between responses to the whole figure and responses involving human movement, expressed as W:M, gives information about intellectual striving. When the W to M ratio is 2 to 1 or more, one can interpret the protocol as representing intellectual ambition. Almost all of the subjects in this study had ratios of greater than 2 to 1, a finding which is not surprising in terms of their intelligence and the high selection standards for the residency program. The groups could not be differentiated on this variable..

Finally, the relationship between human movement and the summation of all responses involving color expressed as M:ΣC gives a measure of the tendency toward introversion or extroversion. Where movement predominates the individual is more likely to be introverted; where color predominates he is more likely to be extroverted. There was some reason to believe from the stereotype that surgical residents might be more extroverted. The data in the table were in this direction, but the trend was slight and did not reach statistical significance.

DIFFERENCES**

When a subject gives a response that involves the whole blot, he is scored as having a W. This is usually associated with the capacity to integrate parts into a whole. On a simple level, this is the first step in concept formation. Individuals with a large number of good W's, therefore, are likely to have a well developed conceptual capacity. From the general knowledge of the task demands of internal medicine, we predicted that residents in internal medicine would have a higher number of W responses. To a certain extent one might say that internists think in systems rather than in specifics. To be sure, a conceptual capacity is also necessary in surgery, and the differentiation between the two should be a relative matter. The data in the table are in the predicted direction and a t test for difference between the means was at the .02 level of significance.

An aspect of the W response that is not ordinarily considered in formal Rorschach scoring is a W(dd). This refers to an emphasis upon small details in the midst of a response to the whole blot. Such individuals, although

*A state in which normative standards of conduct and belief have weakened or disappeared characterized by personal disorientation, anxiety, and social isolation.

**The data for differences which occurred between the experimental groups are presented in Table 4.

TABLE IV

Rorschach Variables with Significant Difference
Between Surgical and Medical Residents

Rorschach Score or Index		Surgical Residents	Medical Residents	χ^2	P
W	0-14	16	14	2.4 ⁽¹⁾	.12
	> 15	4	10		
W (dd)	0	14	22	3.43	.07
	> 1	6	2		
F %	< 50	8	16	3.1 ⁽²⁾	.08
	> 50	12	8		
textbook anatomical response	0	4	15	7.9	<.01
	> 1	16	9		
card rejection	0	15	23	4.2	<.05
	> 1	5	1		
VIII=X %	< 30	7	3	3.2 ⁽³⁾	.08
	> 30	13	21		
C	0	15	24	6.6 ⁽⁴⁾	<.01
	> 1	5	0		

(1) t=2.4 p=.02
(2) t=4.6 P < .01

(3) t=2.2 P < .05
(4) Fisher's test p=.01

giving an overarching concept, tend to emphasize the details within that concept. The response does not occur frequently in records. However, our surgical residents had more of these responses. The resulting Chi-square was very close to the acceptable 5 percent level.

When an individual responds to the Rorschach blots, he can emphasize the shading, the movement of the figures, the color, or just the form qualities of the blot. The percentage of responses in the latter category is known as the F percent. Individuals with a high F percent tend to deal with the world in a somewhat formal way. They keep their emotions under a tighter rein than those with a low F percent and are not as responsive to either the internal world of fantasy or to external emotional events. On the basis of the previous finding, we had the tentative assumption that surgical residents would be higher on F percent. The table indicates that the data were in this direction, and a computation of the t test indicated that the mean scores could be differentiated at the .01 level.

Many people give responses indicative of their particular occupational areas. One might therefore expect that physicians would give responses that involve anatomy. In reading the protocols it became quite apparent that there was a variation in the amount of detail that was presented in the anatomical responses. All of the anatomical responses were copied and then divided into those that closely resembled textbook type responses and those that did not. The next table presents the number of individuals who gave one or more textbook anatomical responses. The difference between the medical and surgical residents here was quite striking, with the majority of surgical residents giving at least one textbook anatomical response. Some examples from each group might be of interest.

One typical internist-in-training responded to the lower portion of plate VIII as: "I could make out a pretty good case for a vertebral body—processes coming out—lateral processes." Another responded to plate VII in an inverted position as: "This way it looks just like the bottom half of a person with their two legs. A rather grotesque person; almost looks like a person I have on the ward with tremendous obesity of the top part of the leg." Later in the inquiry he said, "It's called lipodystrophy."

In comparison to plate VI, a typical surgeon-in-training response was: "In the middle of the dark streaks the two lighter ones resemble two kidneys. I suppose the dark streak could be the urogenital ridges from which the kidneys and genitalia eventually develop in the embryo. The end is Henson's node."

Another interpreted plate X as: "The only thing it really resembles is a cross section of skin. The external layers under the microscope. They stain the same color. The keratin layer here and the deeper layer there. The keratin is built up."

Occasionally a subject will not be able to give a response to one of the Rorschach plates. An interpretation of the meaning of card rejection varies from one situation to another. In some cases it may be associated with serious pathology or with neurotic blocking. In subjects who are generally well adjusted, as were the members of the two experimental groups, card rejection is more indicative of temporary impairment due to a cautiousness in responding to stimuli. Some individuals do not like to let themselves go or to commit themselves until they are quite certain of

the material with which they are dealing or understand the potential consequences. The examiners in the study had the distinct impression that many of the rejections were due to high criteria for evidence that subjects would not respond to a blot unless they were certain that they could see something that made sense.

There were more card rejections by the surgical than by the medical residents, and the difference reached an acceptable level of statistical significance. This finding makes sense when one considers the craving for very strong evidence already shown in their increased F percent and W(dd) scores.

The next variable is related to the one just described. The last three cards of the Rorschach series use bright colors, not just black and white or red, black and white. In Rorschach interpretive theory, the capacity to respond to material of this kind represents a high degree of comfort with emotional stimuli. The blots are so constructed that a number of responses are possible, and in many records the percentage of responses to the last three cards is considerably more than one would expect, that is, considerably more than 30 percent. The higher the response to the last three cards up to the 30 percent norm, the greater the degree of comfort of the individual in responding to outside emotional stimuli. In view of the data on card rejection and F percent, we made the prediction that surgical residents would more frequently have protocols where the number of responses to the last three cards was less than 30 percent. The data were in that direction, and a t test for differences between means reached the .05 level.

The final variable may come as some surprise, particularly in view of the last two. It is possible to respond to a colored blot by giving an answer that emphasizes the color alone and does not include any form qualities. For example, to card IX the respondent says: "These are three dyes used in staining biological slides." Also for the same card the middle green section might be seen as "ocean water." In Rorschach terminology these responses are referred to as pure color responses, and they are rather infrequent. Our interpretation of C responses in this study is that they represent a breakthrough of emotional explosiveness. Five of the surgical residents gave C responses, while none of the medical residents did.

In clinical experience one always looks for the context of C responses because only then can the psychologist distinguish between disordered behavior and that where there is temporary impairment. In all of the cases where C responses occurred, they were immediately followed by well controlled, form-dominated responses. Although some of our subjects had the capacity for explosiveness, they were also individuals in whom this explosiveness would not interfere with adequate functioning and who would be able to impose careful controls following a brief explosive outburst. In the operating room their histrionics would not interfere with operative technique or the capacity to continue delicate work for a sustained time. In them the explosiveness would be a tension-reducing device that has adaptive qualities to it.

DISCUSSION

The data presented need to be considered within the context of the par-

ticular situation from which the experimental subjects were drawn. Competition is high for selection as an intern or resident in either of these medical or surgical services. The positions are regarded as achievements for individuals graduating from medical school. Therefore, the intellectual ability and general personality integration of residents on these services is high.

In addition, both services have on-going research activities, and residents on either service are encouraged at some point in the residency training to take part in research projects. As a result many of the graduates go on to positions within academic medicine.

As a consequence, there are limitations in differentiating between personality characteristics of these prospective surgeons and internists. In his study of physicians in the Syracuse area, Stern³ found that he could not differentiate between specialists within an academic situation, using the Activities Index. It was only when he gathered data from practitioners in the community that differences between the specialties began to appear. To some extent then the cards were biased in this particularly study, and our subjects cannot be considered as generally representative of the fields of surgery and internal medicine. They may be representative, however, of individuals who are in or will be in academic medicine.

In many ways the negative findings of this study are as interesting as the positive ones. Most of the qualities associated with the alleged surgical stereotype could not be substantiated by our data. Surgical residents had as much capacity for emotional responsiveness as their medical counterparts. There were no differences in terms of energy or drive. As far as the variables of personal relationships were concerned, there were no differences in the tendency to treat people impersonally, to use tact, or to show the capacity for social intelligence. Neither group was higher on introversion-extroversion, intellectual ambition, capacity to control anxiety, or the tendency to have mood swings. Our surgeons-in-training were no more hostile, extroverted, impersonal, insensitive, or ambitious than their medical counterparts.

In considering the personality differences that did emerge from these data, there were two or three areas in which the stereotype was confirmed. The first of these was explosiveness. Although only one quarter of the surgical residents showed this quality, it occurred in only one of the medical residents. Also, the surgical residents were more rigid than the internists. The rigidity, however, was primarily that which is associated with a cognitive style of approaching problems. The surgical residents put more emphasis upon detail in reaching conclusions and confirming hypotheses. They needed more evidence. They also insisted on more accuracy and were inclined to emphasize the formal rather than the more emotional qualities of situations.

In short, the surgical residents were more likely than their medical counterparts to be bound by their need for evidence and thus to be less flexible in approaching problems. They were more hardheaded, realistic, ritualistic, and data bound.

The common stereotype of the cold, aloof and aggressive surgeon was not confirmed in this sample of resident physicians; surgeons and internists were different, however, in certain aspects of congenitive style. Although

these differences were subtle, they do provide a basis for meaningful distinction between surgeons and other specialists.

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