Creativity and Psychosis

An Examination of Conceptual Style

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The performance of creative writers on the Goldstein-Sheerer Object-Sorting Test was compared with that of admitted manic and schizophrenic patients. Writers and manics tended to show more behavioral and conceptual overinclusion, but the writers showed substantially more richness and the manics more idiosyncratic thinking. Schizophrenics tended to be underinclusive rather than overinclusive and showed less richness and bizarreness than the writers and manics.

These data imply that the conceptual style of writers may resemble mania more than schizophrenia and that, if overinclusiveness is an index of thought disorder, manics may have a more florid thought disorder than schizophrenics.

For centuries people have debated the relationship between psychological health or illness and the capacity to be creative. Various theories about the wellsprings of creativity have included sublimation of sexuality,[1] regression in the service of the ego,[2] and freedom from neurotic distortion in the creative process.[3] Turning from psychological to medical theories, one finds various theorists or researchers implicating epilepsy,[4] schizophrenia,[5-7] alcoholism,[8] personality disorders,[9-11] or affective disorder.[12,13]

Some of the investigations of prevalence of illness in creative individuals have been quantitative,[9-13] although the findings have sometimes been blurred by vague or imprecise definitions of creativity or of psychiatric diagnostic categories. Some of the discussions of psychological or cognitive aspects of creativity have been more theoretical, although there have been many notable attempts to determine personality structure in creative individuals in various fields or to create tests that evaluate capacity to be creative.[14-18]

Our investigation began as an attempt to evaluate psychiatric symptomatology, family history, and conceptual style in a relatively homogeneous group of creative individuals: creative writers. Following data or theories originally suggested by Heston,[6] Karlsson,[5] and others, we anticipated that we might find a strong family history of schizophrenia. The results of that investigation, which have been reported elsewhere,[12,13] indicated instead a strong family history of affective disorder and also a considerable prevalence of affective symptoms in the writers themselves. This investigation reports on the second aspect of the study, the examination of conceptual style.

METHOD

The sample consisted of a consecutive series of 16 manics and 15 schizophrenics admitted to the University of Iowa Psychiatric Inpatient Service and 15 writers from the University of Iowa Writers' Workshop. Prior to testing, patients were screened by one of the investigators. Criteria for inclusion were as follows:

Mania.—(1) At least four out of eight symptoms of mood disorder (racing thoughts, grandiosity, pressure of speech, increased sociability, early awakening, increased sex drive, irritability, or financial extravagance); (2) Duration of symptoms for more than two weeks; (3) History of periods with at least five depressive symptoms for more than three weeks (dysphoric mood, decreased appetite, weight loss, decreased sex drive, insomnia, diurnal rhythm, suicidal thoughts, crying spells, guilt feelings, or decreased concentration), including at least two physiological symptoms; and (4) Full remission between episodes.

Schizophrenia.—(1) Absence of mood disturbance (depression or elation); (2) At least one of three cognitive symptoms (Schneiderian first rank symptoms, delusions, or auditory hallucinations) in the absence of recent drug intake or excessive use of alcohol; (3) At least one of three behavioral symptoms (social withdrawal, poor work history, or poor heterosexual adjustment); and (4) Incomplete remission between episodes.

The 15 writers were drawn from the rotating and permanent staff of the Iowa Writers' Workshop, a center recognized nationally and internationally for its ability to draw gifted students and teachers, including at various times such writers as Kurt Vonnegut, John Cheever, and Philip Roth. Although not all the writers examined had achieved national recognition, all had published and many were widely recognized and admired. The writers were also examined using a structured interview, and a substantial number had experienced psychiatric problems or treatment, especially for depression, a finding that has been described elsewhere.[12] Two met specified criteria for bipolar affective disorder, eight for unipolar affective disorder, six for alcoholism, and nine for cyclothymia. None of the writers had symptoms of either mania or depression at the time of testing.

The manic and schizophrenic patients were all admitted because of sudden onset or exacerbation of symptoms, and did not differ significantly in age, sex, or educational background. Both groups had a mean of 12.5 years of school. The mean age of the manics was 32 years, and 11 had had prior hospitalizations, while the mean age of the schizophrenics was 27 years, with 11 having had prior hospitalizations. The schizophrenics included eight hebephrenics and seven paranoids. The writers had a mean age of 34 years but differed substantially in educational background; nearly all were college graduates, and several had advanced degrees.

All subjects were given the Goldstein-Scheerer Object-Sorting Test.[19] The patients were usually tested within a week after admission, and, although most had started to receive medication, all still had moderately severe symptoms of illness. The "handing-over" method of administering the test was used with a total of eight starting points, all of which were predetermined by the examiners. After each sorting, the subject was asked to explain why he sorted the objects in that manner and his answer was recorded. The test results were then coded to conceal name and diagnosis and were randomly mixed. Both investigators scored them independently on a blind basis for conceptual overinclusion, idiosyncratic thinking, richness, and underinclusiveness, using the criteria described by Harrow et al.[20,21] (Himmelhoch J, et al:

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Manual: Assessment of Selected Aspects of Thinking, is also available from the Department of Psychiatry, Yale University, New Haven, Conn.) In brief, these may be defined as follows:

Behavioral Overinclusion.—The total number of objects sorted in response to eight starting points.

Conceptual Overinclusion.—This was scored on a 1 to 5 scale with 1 representing normal logical sortings and 5 maximum overinclusiveness. Sorting behavior leading to high ratings included using vague or unrelated concepts to arrange groups, arbitrarily changing starting points, and "force fitting" objects into a category in which they did not belong.

Idiosyncratic Thinking.—This was scored on a 1 to 5 scale with 1 representing no idiosyncratic behavior and 5 for the most extreme behavior. High scores were assigned for sorting by using the starting point in reference to personal experiences, using it as a cue understandable only to the subject, or engaging in inappropriate or strange behavior while sorting. For example, one manic patient sang all her explanations and attempted to eat some of the test materials (including some nonedible ones) because she felt she needed greater nourishment.

Richness.—Richness was scored on a 1 to 5 scale with 1 representing no richness and 5 a maximum. High scores for richness were assigned when subjects saw dimensions in the starting point rarely seen by others but which were appropriate. This included fresh symbolic sortings (recognizing a group of oblong objects as phallic symbols), seeing each starting point in a fresh or different way from other starting points so that many concepts were utilized in the course of testing, or consistently making clear logical sortings.

Underinclusiveness.—This dimension was scored on a 1 to 5 scale with 1 representing no underinclusiveness and 5 a maximum. Behavior leading to high ratings on underinclusiveness included inability to sort in response to a starting point, incomplete sortings, and repeatedly using the same categorizing principles.

Ratings were usually quite close but, after rating independently, both investigators discussed their ratings and reached a consensus score for each subject. After the code was broken, data were analyzed using a series of t tests (two-tailed) to compare the three groups.

RESULTS

Contrary to the original hypothesis with which the investigation was undertaken, that creative writers would resemble schizophrenics in cognitive and conceptual style, the writers as a group tended to resemble the manics rather than the schizophrenics. As shown in Table 1, the manics and creative writers both tended to be quite overinclusive. Both scored high on total number of objects sorted (behavioral overinclusion), and on their tendency to blur, broaden, or shift conceptual boundaries (conceptual overinclusion). They did not differ significantly in either of these areas, although the manics as a group had somewhat higher scores on overinclusiveness. As would be expected, both groups scored low on underinclusiveness. Rather strikingly, these two groups differed in the quality of their conceptual overinclusiveness. The manics received a much higher mean score on idiosyncratic thinking, while the writers scored higher on richness (differences significant at the .01 and .001 level, respectively). Thus, the overinclusiveness of the manics tended to be based on bizarre associations, while that of the writers appears to be due to imaginative recognition of fresh or original associations between the various objects.

On the other hand, as shown in Table 2, the writers exhibited sorting behavior quite different from the schizophrenics. The writers were more behaviorally overinclusive than the schizophrenics at the .001 level. They also demonstrated greater richness and less underinclusiveness at the .001 level.

Table 1.—Comparison of Conceptual Style in Manics and Creative Writers

	Manics (N = 16)		Creative Writers (N = 15)			
	$\bar{x}$	SD	$\bar{x}$	SD	t	P
Behavioral overinclusion	54.63	46.83	41.40	19.45	0.982	NS
Conceptual overinclusion	3.31	1.77	2.26	1.33	1.80	NS
Idiosyncratic thinking	3.43	1.50	1.80	0.86	3.56	.01
Richness	1.50	0.50	2.86	1.30	3.76	.001
Underinclusiveness	1.62	1.20	1.20	0.41	1.24	NS

Table 2.—Comparison of Conceptual Style in Schizophrenics and Creative Writers

	Schizophrenics (N = 15)		Creative Writers (N = 15)			
	$\bar{x}$	SD	$\bar{x}$	SD	t	P
Behavioral overinclusion	18.07	11.76	41.40	19.45	3.84	.001
Conceptual overinclusion	1.46	0.91	2.26	1.33	1.86	NS
Idiosyncratic thinking	2.26	1.38	1.80	0.86	1.06	NS
Richness	1.26	0.59	2.86	1.30	4.20	.001
Underinclusiveness	3.06	1.57	1.20	0.41	4.29	.001

Table 3.—Comparison of Thought Disorder in Manics and Schizophrenics

	Manics (N = 16)		Schizophrenics (N = 15)			
	$\bar{x}$	SD	$\bar{x}$	SD	t	P
Behavioral overinclusion	54.63	46.83	18.07	11.76	2.84	.01
Conceptual overinclusion	3.31	1.77	1.46	0.91	3.56	.01
Idiosyncratic thinking	3.43	1.50	2.26	1.38	2.18	.05
Richness	1.50	0.50	1.26	0.59	1.19	NS
Underinclusiveness	1.62	1.20	3.06	1.57	2.79	.01

As shown in Table 3, Harrow's qualitative method of evaluating overinclusiveness yields results similar to those elicited by the quantitative methods of Payne et al[22-24] when manics and schizophrenics are compared. Our comparison of manics and schizophrenics, using the Payne battery, elicited significantly more overinclusiveness in the manics than in the schizophrenics.[25] The Harrow method pinpointed some of the subtler aspects of the differences between manic and schizophrenic thought disorder. Manics showed more behavioral and conceptual

overinclusion than the schizophrenics, while the schizophrenics tended to be more underinclusive. Manics showed more bizarre or idiosyncratic thinking than the schizophrenics, and neither group was very rich or imaginative.

The following examples illustrate the differences in sorting behavior in the creative writers, manics, and schizophrenics.

Subject 30, a writer, sorted a total of 40 objects and received consensus scores of 4 on conceptual overinclusion, 2 on idiosyncratic thinking, 5 on richness, and 1 on underinclusion. In response to the candy cigar, he sorted the pipe, matches, cigar, apple, and sugar cubes, explaining that all were related to consumption. In response to the apple, he sorted only the wood block with the nail driven into it, explaining that the apple represented health and vitality (or yin) and that the wood block represented a coffin with a nail in it or death (or yang). Other sortings were similar.

Subject 34, a manic, sorted 47 objects and received scores of 5 on conceptual overinclusion, 5 on idiosyncratic thinking, 2 on richness, and 1 on underinclusiveness. While sorting she snapped a candle in two and put half of it in a pipe, which was to represent a candleholder, and then attempted to light it with the matchbook included in the objects. She chewed up the other half of the candle and spit it out on the desk. In response to the dog she sorted the ball "for the dog to chase," the spoon "to feed the dog," the candle "for him to jump over like Jack-be-nimble," and the candy cigar "if the dog is hungry." Other sortings were similar.

Subject 14, a schizophrenic, sorted a total of 18 objects and received a score of 1 on conceptual overinclusion, 4 on idiosyncratic thinking, 1 on richness, and 4 on underinclusiveness. On one occasion he was not able to sort at all. In response to the lock he sorted the screwdriver, nails, and pliers, and explained that they all reminded him of his Uncle Bill's workshop. In response to the red poker chip he sorted the yellow chip and the matches and explained only that matches are used to light cigarettes. Other sortings were similar.

COMMENT

This investigation began as a multifaceted examination of psychiatric symptomatology and conceptual style in creative writers, based on the hypothesis that creative writers might show symptoms and especially cognitive style similar to those noted in schizophrenia. The hypothesis concerning symptomatology was resoundingly disproved, for the writers not only had a significant prevalence of affective disorder but also had a strong family history of affective disorder. Their performance on the Goldstein-Scheerer Object-Sorting Test, as scored by Harrow's method, tends to discredit the hypothesis concerning conceptual style as well.

The data presented should, however, be examined with some reservations. Most of these are related to problems in sampling. The underlying assumption in selecting each of the samples was that each group should be as narrowly defined as possible, in order to obtain a "pure" sample. Thus, the writers are at a high end of the continuum of talent and probably intelligence, while the schizophrenics and manics are less educated and probably less intelligent. Initially, efforts were made to match the writers with manics and schizophrenics of like age and educational background, but this proved impossible, since such patients simply did not exist in sufficient numbers. Thus, the differences noted in cognitive style may be due in part to the inability to hold constant among the three groups the variables of intelligence and education, although the variable of age was essentially constant among the three, and the two psychiatric groups were of similar educational background.

A second sampling problem is involved in defining "high creativity." The decision was made to define this operationally: ie, to select people who had demonstrated substantial creativity through their achievements. Since cognitive style was a variable being measured, performance on psychological tests or tests of creativity could not be used to select a sample of creative individuals, since this would lead to circularity. The definition of creativity is a matter of some debate, of course, but the authors believed that an operational definition of creativity was at least as likely to produce valid and reliable results as a psychological one, and perhaps more likely.

A third sampling problem is involved in defining schizophrenia. Current nomenclature recognizes various subtypes, including acute and chronic schizophrenia. Since samples of acute schizophrenics may be contaminated by mildly bizarre manic or depressed patients or people suffering from reactive psychoses or even hysterical psychosis, our sample was restricted to patients who had incomplete remission between episodes or after treatment for the initial episode. This restriction led to a homogeneous sample of patients who were almost certainly schizophrenic, but it raises the problem that the patients were necessarily somewhat chronic or deteriorated and that this may affect their performance on tests of cognitive style. Nevertheless, patients were all tested soon after admission, presumably when their symptoms were most acute. And they did not differ significantly from the manic patients in either age or number of prior admissions.

With these reservations based on problems inherent in sampling such different and difficult-to-define groups, the following conclusions appear to follow from the data obtained.

1. Creative writers resemble patients suffering from bipolar affective disorder, manic phase, in their conceptual style more than they resemble schizophrenics. That is, they tend to show considerable overinclusive thinking, based on both the quantity of objects that they sort and their conceptual overinclusiveness. Both writers and manics tend to sort in large groups, change dimensions while in the process of sorting, arbitrarily change starting points, or use vague distantly related concepts as categorizing principles.

2. The overinclusiveness of the writers seems to be based on their imaginative creativity and, therefore, is qualitatively different from that of the manics. The writers are able to engage in controlled flights of fancy during the process of sorting, while the manics tend to sort many objects for bizarre or personalized reasons. This

difference is reflected in the high scores for richness obtained by the writers, as contrasted with the high scores for idiosyncratic thinking obtained by the manics.

3. The conceptual style of the writers, as measured by the Object-Sorting Test, admittedly a relatively limited measure, fits in logically with the patterns of psychiatric symptoms or illness that they demonstrate. None was suffering from psychiatric symptoms of a severe nature or was under treatment at the time of testing, but two had had manias in the past and nine described a persistent pattern of cyclothymic mood swings with "high periods" lasting up to three weeks. Thus they seem to share the affective style, with its associated high energy levels, intellectual quickness, and high productivity, and they demonstrate this style in their testing behavior. One might have expected them to share cognitive style with the schizophrenics rather than the manics, in view of prior theories about creativity that stress capacity to indulge in controlled regression, to tap primary process thinking, or to make loose associations that are fresh or inventive. Nevertheless, their testing behavior was similar to that of the manics, suggesting that conceptual or cognitive traits associated with affective disorder may in some way be related to creativity. Whether the relationship is contributory, a cause, or an effect is an open question at this point.

4. As compared with manics, schizophrenics tend to be less overinclusive, and perhaps even underinclusive. If overinclusiveness is a substantial aspect of thought disorder, one might conclude that manics tend to have a more florid thought disorder than schizophrenics. Neither group tends to be overinclusive on the basis of richness, but the manics are both more overinclusive and more idiosyncratic or bizarre than the schizophrenics. This sample of schizophrenics did perform somewhat differently from those tested by Harrow et al.[21] Their behavioral and conceptual overinclusion scores were much lower, although both his samples and ours had similar scores on idiosyncratic thinking. The difference in overinclusion scores is probably due to different diagnostic criteria and sampling. More than half of his schizophrenics were either pseudoneurotic or schizoaffective (predominantly the former) and both these types were excluded from our sample because a narrower definition of schizophrenia was employed.

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