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ABSTRACT

This paper reviews literature on the relationships among schizophrenia, affective illness, and creativity. Historical perspectives on this relationship are explored and recent efforts in empirical research are discussed and critically evaluated. Results offer limited support for the proposition that schizophrenia is linked to creativity. The negative symptoms of schizophrenia (e.g., poverty of speech, lethargy) were found to limit creativity more than encourage it. Evidence does suggest, however, that bipolar disorders are positively correlated with high creativity and are prone to actualizing creativity if certain conditions exist. This ability appears to be dynamic; that is, it is manifested more significantly during some periods, instances, and affective states than others, particularly when an individual's mood is mildly or moderately elevated. Another definitive finding is that artists and writers suffer from affective illness more frequently than the general population. Artists and others believed to be prolific creators had higher rates of unipolar depression and bipolar spectrum illness as well as treatment histories than do others in the general population. The paper concludes that the robustness of these findings is limited by the methodological and conceptual weaknesses that characterize much of the research addressing these questions. (Contains 48 references.) (CR)

EXPLORING THE RELATIONSHIP BETWEEN SCHIZOPHRENIA, AFFECTIVE ILLNESS, AND CREATIVITY

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by

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This paper is a literature review on the relationship between schizophrenia, affective illness, and creativity. Historical perspectives on this relationship are explored and recent efforts in empirical research are discussed and critically evaluated. Results offer limited support for the proposition that schizophrenia is linked to creativity. Evidence does suggest, however, that bipolar disorders are positively correlated with high creativity. The robustness of these findings is limited by the methodological and conceptual weaknesses that characterize much of the research addressing these questions.

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EXPLORING THE RELATIONSHIP BETWEEN SCHIZOPHRENIA, AFFECTIVE ILLNESS, AND CREATIVITY

Introduction

From the studios of Hollywood to the pages of magazines, the architects of popular culture have increasingly embraced the stories of eccentric billionaires, unbalanced explorers, and artists who have teetered precariously on the brink of insanity. A recent issue of Fortune (Nocera, 2001) features a cover story about a prominent businessman, describing him as a "mad scientist with the heart of an entrepreneur" (p. 72). A best-selling biography (Ambrose, 1997) suggests that Meriwether Lewis was manic-depressive and argues that his mysterious death was a suicide. In the film Pollock (Sony Pictures, 2001) the famous artist Jackson Pollock is portrayed as both gifted and profoundly troubled. It is not only moviemakers and an occasional writer who believe in the relationship between mental illness and creativity, however. In fact, historians, mental health professionals, and scholars from wide-ranging disciplines agree that society's most creative members are sometimes its most deeply disturbed persons (Ludwig, 1992; Storr, 1976). Reflecting on the psychiatric problems that have plagued various artists, writers, and musicians, Simonton (1994) observed the following:

> Some notables were insane enough to require treatment in an asylum.... Pound and Donizetti were such cases. Some even ended their lives both insane and institutionalized—such as Schumann, Smetana, and Wolf. Others definitely needed psychiatric help. Hemingway received electroshock therapy at the famed Mayo Clinic. ...and Rachmaninoff actually dedicated his Second Piano Concerto to his therapist, who directly inspired the composition's creation. In these instances, we cannot doubt that we are talking about troubled spirits. (p. 286)

The conviction that brilliant individuals are frequently "troubled spirits," is an enduring belief with a long history and substantial anecdotal support. Since the days of Aristotle, many astute commentators have argued that brilliance and mental imbalance go together (Jamison, 1993; Simonton, 1994). This assumption has rarely been completely out of favor and flowered in the Victorian era, encouraged in part by the work of Lombroso (1891), who was the first to study the "madness/genius" controversy in a systematic though rudimentary way. His claim that genius was a "degenerative psychosis of the epileptic group" was embraced by physicians of the day and promoted in leading medical journals. One such article (as cited in Simonton, 1994) detailed the four possible results of an "inferior genetic endowment," which typifies the thinking of this influential Italian criminologist:

> First and most prominent in the order of frequency is an early death. Second, he may help swell the criminal ranks. Third, he may become mentally deranged and ultimately find his way into a hospital for the insane. Fourth, and least

> frequently, he startles the world by an invention or discovery in science or by an original composition of great merit in art, music, or literature. He is then styled a genius. (p. 285)

In the decades that followed, numerous scientists and scholars, though differing from Lombroso, provided support for the burgeoning belief that brilliance in the creative arts and psychiatric disturbance are aligned. The British scientist, Galton, completed a magisterial and primarily anecdotal study titled Hereditary Genius in which he argued that genius is not only inherited, but that there is a significant relationship between mental illness and creativity (as cited in Simonton, 1994). American psychologist William James believed that mental illness is associated with prolific ability and high achievement, particularly when it is paired with other variables. James, who also suffered from an affective disorder, said,

> The nature of genius has been illuminated by the attempts...to class it with psychopathological phenomena. Borderline insanity, crankiness, insane temperament, loss of mental balance, psychopathic degeneration (to use a few of the many synonyms by which it has been called), has certain peculiarities and liabilities which, when combined with a superior quality of intellect in an individual make it more probable that he will make his mark and affect his age, than if his temperament were less neurotic. (as cited in Jamison, 1993, p. 285)

Though the conclusions of late 19th and early 20th century scholars were provocative, they tended to be significantly more speculative and theoretical than they

were empirical. Describing the weaknesses of these studies, Andreasen and Powers (1975) state,

> These early anecdotal approaches make fascinating reading, but they have clear scientific limitations. Because they begin by identifying cases that illustrate an association between creativity and illness, they do not test a new hypothesis or even indicate how common or uncommon the association may be. They raise tantalizing series of questions without adequately answering them: Is there really more psychiatric illness among creative people than the general population? If there is more, how common is it? Is there a tendency for creative people to have a particular type of psychiatric illness, or do they have a wide range of types? Is there an association between psychiatric illness and creativity, is it with specific types of creativity (such as writing or painting), or does it occur in all types of creative people? If there is an association does it tend to be familial? If the association is familial, is it genetic, nongenetic or multifactorial? (p. 114)

Many of these questions remain unanswered. Even though increasingly sophisticated attempts have been made in exploring these possibilities, researchers have achieved little headway. An emerging coalition of scholars recognize the adaptive value of certain forms of psychopathology, but academicians are far from arriving at a consensus on the madness/genius controversy. For example, some experts freely dismiss the notion that there might be a relationship between manic depression and high creativity (Prentky, 1980; Simonton, 1994). Others argue that the mentally ill are uniquely able to access the

pain and trauma that give birth to creative pursuits. Much of the research conducted to date has failed to support either position completely and has frequently been poorly conceived, unsystematic, contradictory, and characterized by unevenness and methodological problems. Nevertheless, a variety of findings have recently emerged that provide support for narrow aspects and specific dimensions of the claim that affective illness and psychosis are related to creativity.

This paper will review relevant empirical studies that have explored the relationship between psychosis, affective illness, and creativity, and critique theoretical assumptions upon which this research has been constructed. Though originally conceived as an evaluation of the relationship between creativity and schizophrenia, this review has been broadened to include the affective spectrum disorders that are currently the focus of more scholarly attention than is schizophrenia, which appears to have lost the interest of researchers who had previously been investigating this topic. The rationale for this change is not merely a pragmatic one, but reflects the growing recognition that psychotic and affective illnesses are more closely related to one another than was previously believed (Lapierre, 1994). Some researchers have wondered about an even broader relationship than will be discussed here regarding the relationship between psychopathology and creativity (Prentky, 1980, 1989). Although this is an intriguing topic, discussion of these broader relationships is beyond the scope of this paper.

Defining Creativity

In recent years, scholars have argued about what creativity is, and their musings have been characterized by a lack of consensus, not only about its nature, but regarding the ways in which it is demonstrated and how it is best measured (Feldhusen & Goh, 1995). Although disagreements regarding the definition of creativity are substantial, creativity can be described by various broad characteristics. According to neuroscientist and philosopher Gardner (1988),

> A creative individual is viewed as a person who regularly solves problems or fashions products in one or more domains of activity. Initially viewed as unusual, these solutions or products are ultimately accepted in one or more cultural settings. The thoughts and behaviors characteristic of such individuals are termed creative processes; those products, which come to be valued, are termed creative achievements. (p.9)

Several issues are evoked by the preceding definition. Perhaps the most significant is the idea that creativity is an ability that can be utilized with a degree of frequency. It is a "predictable occurrence, not a one-time accident" (Gardner, 1988, p. 9). Creativity is also considered "unusual." Referring its novelty and originality, James stated,

> Instead of thoughts of concrete things patiently following one another in a beaten track of habitual suggestions, we have the most abrupt cross-cuts and transitions from one idea to another, the most rarefied abstractions and discriminations, the

> most unheard of combinations of elements, the subtlest associations of analogy; in a word, we seem suddenly introduced into a seething caldron of ideas, where everything is fizzling and bobbling about in a state of bewildering activity, where partnerships can be joined or loosened in an instant, treadmill routine is unknown, and the unexpected seems the only law. (as cited in Simonton, 1994, p. 93)

It is not enough that creative efforts are merely different, however. If this were the case, it would be exceedingly difficult to determine what is or is not creative. Although unusual in many respects, creativity serves a purpose or results in the development of an idea, an invention, or something of the sort that is ultimately accepted by a segment of society. Though a bit subjective, the notion that truly creative pursuits are accepted or understood by others is important because it suggests that bizarre or profoundly idiosyncratic creations may not be truly creative.

Definitions of creativity are sometimes controversial, and various issues and approaches related to its assessment are equally so. Three issues have particular significance. The first and most important pertains to the nature of the relationship between creativity and intelligence and how it is assessed and will be discussed in greater detail on proceeding pages. Psychometricians have typically attempted to establish a significant correlation among popular creativity measures with varying degrees of success. Results on word association tests, measures that assess divergent thinking, and ideational fluency have been compared with results on standard measures of intelligence.

The second and third issues concern reliability and validity, respectively. As researchers have noted, most popular creativity measures have proven reliable and have demonstrated a significant degree of stability. The validity of these tests, however, is in doubt. Specifically, the findings of these tests do not correlate strongly with the findings of judges or other raters trained to assess creativity (Richert, Alvino, & McDonnell, 1982).

Methodological Considerations

Attempts to study the relationship between creativity and mental illness have focused on schizophrenia for numerous reasons. The Laingian tendency that was popular in the 1960s was to lionize the illness and glorify its so-called virtues (Laing, 1960). The odd, eccentric, and colorful forms of communication so characteristic of schizophrenia appear to be creative (Chaka, 1974). Though research efforts have diminished in recent years, some eminent contemporary psychopathologists continue to speculate that there may be a link between creativity and psychosis (Claridge, Pryor, & Watkins 1990; Crow, 1990). One basis for such speculation is that creative and schizophrenic individuals appear to share certain cognitive processes, such as increased response competition and the tendency to think divergently and generate unusual associations. (Hasenfus & Magaro, 1976).

Though such theorizing has been popular in the past 3 decades, less than a handful of empirically oriented studies have been devoted exclusively to the relationship between creativity and schizophrenia, primarily due to the emerging conviction that

bipolar illness may be more closely implicated in the facilitation of both creativity and creative endeavors. Increasingly, scholars are concluding that the madness believed to characterize historical figures and eccentrics of all sorts was not schizophrenia, but manic depression. Applying this argument to "religious visionaries," Gartner (1998) states,

> Such individuals are, almost by definition, far too high functioning to fit the pattern of a disease with a chronic deteriorating course, which breaks down all cognitive functions as we find in schizophrenia. Psychiatry had the right idea, but the wrong disease. That is because psychotic experience was once believed to be prima faci evidence of schizophrenia before we recognized that mood disorders can also produce such experiences, ones which are congruent with depressed and elated mood. (p.11)

Review of the Literature

Relevant studies, whether pertaining specifically to the relationship between creativity and schizophrenia or addressing questions about madness and genius in general, fall into three broad categories. The first category involves comparisons and typically consists of studies that attempt to compare so-called creative individuals (e.g., writers, artists) with psychiatric patients or mentally disturbed persons using one or more tests that purport to measure creativity. The second category includes studies that are historical in nature. The most controversial and least reliable of the three categories, these studies attempt to draw conclusions about the psychological characteristics of

individuals on the basis of their autobiographical or biographical information. The third category includes studies that examine the prevalence of illnesses among certain populations believed to be creative. For example, researchers using this approach may attempt to determine the percentage of poets that have received psychiatric treatment or antipsychotic medication. In the discussion that follows, articles are grouped together and evaluated on the basis of these three categories.

Comparison Studies

Agarwal (1987) compared creativity in persons with schizophrenia and in "normal" persons. The participants in the schizophrenic group were patients in a psychiatric ward, and the participants in the normal group had no history of mental illness. Participants were matched by age and educational level and were assessed using the Baquar Mehdi battery, a modification of the well known Torrance Test of Creative Thinking. Each item on the battery was scored for originality and elaboration. Results demonstrated no significant difference between the two groups on verbal and nonverbal originality and verbal and nonverbal elaboration. The normal group scored minimally higher than the schizophrenic group on verbal and nonverbal originality and verbal elaboration, and no difference was noted on nonverbal elaboration. These findings generally fail to support the hypothesis that schizophrenia facilitates or is related to creativity, yet these results leave many questions unanswered. For example, one major question remains regarding whether the schizophrenic persons in the sample were

paranoid or nonparanoid. This is particularly relevant since these two subtypes of schizophrenia are quite distinct and characterized by unique symptom profiles.

Keefe and Magaro (1980) have argued that creativity and schizophrenia are characterized by similar styles of cognitive processing. They administered three tests of creativity (Alternate Uses Test, Welsh Figure Preference Test, and Revised Art Scale) to 10 paranoid schizophrenic patients, 10 nonparanoid schizophrenic patients, 10 nonpsychotic psychiatric patients, and 10 "normal" persons. They hypothesized that those with nonparanoid schizophrenia would perform more favorably than both those with paranoid schizophrenia and those in the normal group due to their tendency toward divergent thinking (Magaro, 1974). Findings indicated that those with nonparanoid schizophrenia were significantly more creative than those with paranoid schizophrenia and also more creative than the nonpsychotic psychiatric patients as measured by the Alternate Uses Test, but not as measured by the Revised Art Scale. Those with nonparanoid schizophrenia also scored higher (yet not significantly) than the other groups on the Welsh Figure Preference Test; however, their superior performance was related to age rather than diagnosis. They also responded with a significantly higher percentage of "highly creative" responses than did those in the normal group.

These findings lend tentative support to the hypothesis that a relationship exists between creativity and nonparanoid schizophrenia; however, a variety of caveats are in order. Those in the nonparanoid schizophrenic group were generally well-educated ($\underline{M}$ = 12 years of education), young, and currently in good contact with reality. In these

respects, they differed only slightly from those in the normal group. Since intellectual ability and educational experience are correlated with creativity, it is unclear how significant the unique features of schizophrenia were to their performances on creativity measures (Keefe & Magaro, 1980).

Andreasen and Powers (1975) compared the conceptual styles of writers to those of a select group of individuals with psychiatric illnesses. They selected psychiatric patients (16 with mania and 15 with schizophrenia) who were hospitalized at the University of Iowa Inpatient Psychiatric Service due to a sudden onset or exacerbation of symptoms. They were not chronically mentally ill, and each had experienced periods in which their illnesses had remitted. Fifteen writers from the University of Iowa's Writer's Workshop were interviewed using a structured psychiatric interview. Most of the writers had experienced psychiatric difficulties (e.g., bipolar affective disorder, unipolar affective disorder, cyclothymia). At the time of their participation in the study, none had symptoms of mania or depression.

Participants were assessed using the Goldstein-Scheerer Object-Sorting Test, which requires respondents to sort a variety of items and then explain their rationale for doing so. Tests were scored by two blind examiners using standardized scoring criteria on five domains: behavioral overinclusion, conceptual overinclusion, idiosyncratic thinking, richness, and underinclusiveness. Although the researchers hypothesized that creative writers would resemble those with schizophrenia in their cognitive and conceptual style, the writers more closely resembled those with mania. Most notably, both the writers and

the persons in the mania group demonstrated significant overinclusion. Although they had high scores on total number of objects sorted and displayed a pronounced tendency to alter or disregard traditional and obvious conceptual boundaries, the quality of their overinclusiveness was strikingly different. The authors note:

> The manics received a much higher mean score on idiosyncratic thinking, while the writers scored higher on richness ($p < .01$ and $p < .001$, 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. (Andreasen & Powers, 1975, p.71)

These results suggest that originality or innovation does not always reflect creativity and that significant variation may exist even among individuals with a similar conceptual style. Though persons with mania tend to display the overinclusiveness so often associated with creativity, their efforts are frequently strange, idiosyncratic, and difficult to understand. However, some of the writers who performed impressively appeared to be manic, which suggests that other variables contribute to their prolific ability.

Rhodes, Dowker, and Claridge, (1995) assessed the relationship between psychosis (schizophrenia) and creativity by analyzing 80 poems by contemporary, nonprofessional writers. Of these poems, one-half were written by persons who were diagnosed with a psychosis, and one-half were written by normal people. Those assigned

to the psychotic group were members of the National Schizophrenia Fellowship and were believed by researchers to suffer from schizophrenia. Those in the normal group were amateur poets who had contributed to numerous contemporary booklets of poetry and were not believed to suffer from any psychiatric ailments.

Rhodes et al. (1995) assessed participants' writing on 11 different dimensions in the areas of content, metaphor, analogy, and rhyme. For reasons that are not particularly clear, the researchers hypothesized the following about the psychotic poets in comparison to the normal poets: (a) They would be more self-analytic, more self-preoccupied, use fewer proper names, and be less prone to describe nature and landscapes; (b) they would use more psychologically/physically oriented metaphors and more person/object and human/animal analogies; and (c) they would use more multiple metaphoric analogies pertaining to a single thing or subject.

The results provide limited support for these hypotheses although several differences were found between the poetry of the of the two groups. Poems written by those in the psychotic group tended to be more self-analytic, included fewer references to proper names and specific locations, and contained metaphors of a psychological/physical nature with greater frequency than did the poems written by those in the normal group. With these exceptions, which primarily involve content rather than language , the poetry was largely the same (Rhodes et al., 1995).

When attempting to draw definitive conclusions, analyzing poetry is a subjective task at best and an ill-fated enterprise at worst. Nevertheless Rhodes et al. (1995)

maintain their findings proved either that normal poetry has pronounced psychotic features or that poetry written by those who are psychotic is basically normal. Neither of these interpretations is particularly illuminating in regard to the relationship between creativity and mental illness, however. A potentially more satisfying way to interpret these results would be that the lack of difference between poetry written by those with a psychosis and that written by normal persons fails to support the hypothesis that psychosis is linked to creativity. However, this is a stronger conclusion than the data allow.

Much of the research done on creativity and bipolar disorder has focused on prolific or eminent individuals although they represent a small percentage of the population. Shapiro and Weisberg (1999) assessed the relationship between creativity and bipolar disorder in a nonclinical sample of noneminent persons. Seventy-two university students participated in the study. Fifty were students in an undergraduate psychology course, and 20 were students who met the criteria for a diagnosis of cyclothymia or manic depression (based on a university-wide mental health screening). Participants were assessed with a variety of psychometric measures, including the General Behavioral Inventory (GBI), the Adjective Checklist-Creative-Personality Scale (ACL-CPA), the Creativity Questionnaire (CREA-Q), and a demographic questionnaire. The GBI is a brief assessment tool that identifies individuals with subclinical manifestations of bipolar disorder, whereas the ACL-CPA and the CREA-Q are a creativity measures. The demographic questionnaire included questions about grade-

point average, high school class rank, parents' education and occupation, and other basic information.

The data were analyzed using multiple regression analysis, with GBI depression scores and hypomania-plus-biphasic scores serving as predictor variables, and ACL-CPS scores serving as the dependent variable. GBI depression scores were unrelated to scores on the ACL-CPS. However, GBI hypomania-plus-biphasic scores were significant predictors of scores on the ACL-CPS. When depression scores were added to hypomanic-plus-biphasic scores, their relationship to scores on the ACL-CPS increased substantially. Generally speaking, there appears to be a robust relationship between affectivity (as assessed by the GBI) and creativity. More specifically, those individuals who were characterized by a hyperthymic affective pattern, rather than a cyclothymic or depressive one, were particularly likely to have high creativity scores (Shapiro & Weisberg, 1999).

Exploring a possible link between creativity, preference for complexity, and mental illness, Eisenman (1990) assessed 37 psychiatric patients (diagnosed with schizophrenia, manic-depressive disorder, or psychotic-depressive disorder) and 37 controls (hospital attendants, cooks, housekeeping staff, and miscellaneous others). Participants were matched on age, gender, and socioeconomic status. Assessment included two measures of creativity: a measure assessing preference for complexity, which may correlate closely with creativity (Eisenman 1965), and a creative writing task. In the first creativity measure, participants were shown 12 cards containing photographs

of polygons with 3 to 24 points and were asked to identify their three favorite polygons. In the second creativity measure, participants were instructed to write three imaginative stories, explain them, and answer questions about them. The stories were evaluated for creativity, originality, and usefulness by two researchers using a 7-point scale.

Eisenman's (1990) findings did not support the hypothesis that mental illness is related to creativity. The average number of points on the polygons preferred by those in the psychotic group was 15.1, whereas the hospital employees preferred an average of 20.5 points. Only 5 of 37 stories from the patient sample were judged to be creative, whereas 28 of 37 stories in the employee group were considered to be creative. These disparities are statistically significant and suggest that, on both verbal and nonverbal tasks, seriously mentally ill individuals are less creative than their normal counterparts.

The generalizability of Eisenman's (1990) findings is questionable, however, since state hospital inpatients are probably among the most impaired of individuals with psychiatric disturbances. Although the role of intelligence in creativity continues to be unclear, the cognitive abilities of the patients in the sample may have been limited or significantly compromised by their chronic mental illness. Therefore, this study could be as indicative of a relationship between intelligence and creativity as it could be of a relationship between creativity and mental illness.

Richards, Kinney, Lunde, Benet, and Merzel (1988) assessed the relationship between mental illness and creativity by comparing persons with manic-depressive disorder, cyclothymia, and their first-degree relatives with both psychiatrically normal

and disturbed controls. Seventy-seven participants (17 with manic-depression, 16 with cyclothymia, 11 normal first-degree relatives, 15 normal controls, and 18 controls with a psychiatric diagnosis other than manic-depression or cyclothymia) were evaluated in extensive clinical interviews and with the Lifetime Creativity Scale (LCS). The LCS, a measure that evaluates creativity over the life span in both vocational and avocational domains, is based on two essential domains: originality and adaptation to reality. By emphasizing the importance of adaptation to reality, the LCS distinguishes itself from other creativity measures that consider odd, bizarre, or idiosyncratic responses or behaviors as indicative of significant creativity.

The LCS assesses "peak creativity," which is believed to be the strongest indicator of creative potential, and was given particular importance in this study. Assessment of peak creativity was done using a 6-point rating system ranging from 1 (insignificant) to 6 (exceptional creativity). Richards et al. (1988) had the following four hypotheses: (a) creativity would be higher for those with manic-depression, cyclothymia, and their normal first-degree relatives than for the nonpsychiatric control participants; (b) persons with cyclothymia would be more creative than those with manic-depression and normal participants; (c) those with manic-depression and their normal relatives would have different levels of creativity; and (d) there would be no statistically significant difference in creativity between the psychiatrically normal control participants and those control participants with psychiatric diagnoses other than manic-depression or cyclothymia.

Richards et al.'s (1988) findings support their first hypothesis, fail to support their second hypothesis, partially support their third hypothesis, and do support their fourth hypothesis. Those with manic-depression, cyclothymia, and normal first-degree relatives did, in fact, score significantly higher on creativity than did the normal control group. Those with cyclothymia failed to demonstrate significantly higher levels of creativity than those with manic-depression and normal participants combined although they did score higher than those with manic-depression. Participants with manic depression appeared to be more creative than their normal relatives to a degree that approached, but ultimately failed to meet, statistical significance. Normal control participants and those controls with a diagnosis showed no meaningful differences with regard to creativity. After eliminating age, education, and intelligence effects, index subjects (those with manic-depression, cyclothymia, and normal first-degree relatives combined) had higher levels of creativity than did those in the control groups.

These results generally support the hypothesis that certain forms of affective illness are related to creativity. Particularly notable is the fact that those with cyclothymia earned significantly higher scores than those with manic-depression, a finding that supports the idea that milder forms of bipolar illness (e.g., cyclothymia, hyperthymia) provide optimal creative potential. Relatively high levels of creativity among normal relatives of those diagnosed with manic-depression is also quite intriguing and suggests that there may be some benefit they receive, and, indeed, significant creativity ability may be one benefit experienced by these relatives.

Merten (1995), a prolific German academician, assessed 58 psychiatric inpatients (43 with schizophrenia, 15 with major affective disorders) and 46 normal controls using a variety of word-association tasks in an effort to determine the relationship between task performance and personality variables. Forty schizophrenic participants and 40 normal participants were selected and matched on age, education, verbal intelligence, and gender. Two groups of 20 patients (with acute and nonacute schizophrenia) were selected and matched on the same variables, as well as on the number of previous hospitalizations and the total number of hospital days. Twenty-five normal persons and those with schizophrenia were selected to form a paralleled group for multiple group comparisons with the affective patients' group.

Participants were given a multiple-choice association test in which they were presented a list of 25 common nouns and a list of rather cumbersome instructions. They were asked to provide one of the following on each of five trials: (a) a free oral single-word association, (b) a common association, (c) an individual association, (d) a percentage rating as to the commonness of their own free association, and (e) a 5-point rating of the commonness of their own free association. On a sixth and final trial, they were presented with a multiple choice association task (AMT) in which each of the 25 words from the list was paired with 3 possible answers: a primary response, a medium frequency response, and an individual response (i.e., a response provided by only one person in the normative sample). They were then asked to determine which of these responses were popular, common, or rare. Participants were also given a multiple-choice

test of verbal intelligence (MWT-A), the Thought Disorders and Speech Disorders subscales of Sullwold's Frankfurter-Beschwerde-Fragebogen (RB-3), and a visual-analogue mood scale. Schizophrenic patients were also rated on the Brief Psychotic Rating Scale (BPRS), whereas those in the control group were given the Eysenck Personality Questionnaire (Merten, 1995).

Merten (1995) performed a cluster analysis to examine the various response patterns in the different versions of the Word Association Test and their relationship to the variables of personality and psychopathology. Five distinct clusters emerged, with clusters three and five seeming to be particularly relevant. Cluster three was primarily comprised of persons with schizophrenia who were more disturbed than those with schizophrenia in other clusters and who had the highest number of negative symptoms and the fewest positive symptoms as determined by the BPRS. They had more common responses than any of the respondents in the other four clusters and displayed marked preservative tendencies. Cluster five was also comprised of many mentally ill participants, who as a group gave the least common and most unusual answers in the free response condition. Nevertheless, they earned lower than average scores than the other clusters on the individual response condition of the AMT, which required them to identify the most unusual response from a list of three possible responses. This finding suggests that, although these participants had the capacity to make unusual, bizarre, and highly idiosyncratic responses, they were frequently unable to recognize unusual responses when confronted with them.

As a group, the comparison studies provide mixed support for the hypothesis that creativity, schizophrenia, and affective illness are related. When persons with manic-depression have been compared to normal persons, those with manic-depressive spectrum disorders have performed quite favorably (Keefe & Magaro, 1980; Shapiro & Weisberg, 1999). Those with schizophrenia—and particularly those with paranoid dispositions—have generally appeared to be less creative than persons in nonpsychiatric populations and those with manic-depressive spectrum disorders, however (Agarwal, 1987; Eisenman, 1990).

Historical Studies

In a historically oriented study attempting to document the rate of mood disorders among artists, Schildkraut, Hirsch, and Murphy (1994) reviewed the psychiatric histories of 14 abstract expressionists from the New York School, an approach to painting that emphasized free association and the artistic expression of unconscious conflict. The researchers studied the lives of these individuals as documented in published material, personal letters, diaries, and objective data (e.g., number of suicide attempts, number of hospitalizations) and arrived at diagnoses based DSM-III-R criteria. Their mortality rates were compared with a reference population to determine whether they differed from expected rates. A high percentage of those studied were given diagnoses of affective disorders. Four artists had suffered from recurrent episodes of depression, 2 suffered from cyclothymia, 1 experienced pronounced mood swings, 3 were treated in inpatient psychiatric hospitals, and 2 committed suicide. Seven

died before reaching 60 years of age although the expected number of deaths based on matched mortality data was 2.3.

An unusually high number of Abstract Expressionist painters suffered from serious psychiatric disturbance, and although Schildkraut et al.'s (1994) findings are compelling, they suffer from obvious limitations. Arriving at accurate diagnostic conclusions from psychohistorical research is frequently a difficult matter, particularly when trying to differentiate between bipolar or affective disorders. To diagnose individuals posthumously, without the benefit of clinical interviews, psychological testing, or numerous other tools is even more difficult and an endeavor fraught with problems. Though the artists in question were no doubt seriously disturbed and evidenced a greater degree of psychiatric illness as a group than would be expected given lifetime prevalence rates, both the precise nature of their pathology and the role it played in the development and the facilitation of their creativity remains in question.

In a British historical study, Post (1994) attempted to determine the relationship between creativity and psychopathology in a sample of 291 world-famous men. He selected subjects from the disciplines of science, philosophy and academia, politics, and art and diagnosed them based on biographical material that seemed to meet DSM-III-R criteria. Diagnoses were made on the basis of "factual" material rather than on the interpretations or opinions of scholars or biographers. Nevertheless, criteria for selection were subjective. Individuals included in the evaluation were all born after approximately

1850, were "judged to have achieved lasting international fame for their innovations in a variety of fields," and had comprehensive bibliographic data written about them.

As with the study by Schildkraut et al. (1994), the weaknesses of Post's (1994) study may be difficult to overstate. The subjectivity of the selection process, the suggestion one can separate "fact" from "interpretation" in psychohistorical investigations, and the lack of accuracy inherent in efforts to diagnose individuals posthumously are among the difficulties inherent in this study. Nevertheless, the findings are not without value. They generally demonstrate the existence of substantial pathology among world renowned (and presumably creative) men and women. As Post points out,

> Depressions occurred in the lives of a third of scientists and composers, and only slightly more often in those of intellectuals, politicians and artists, rising in them to 41.7%. As the most surprising finding of the investigation, 72% of novelists and playwrights suffered from depressive conditions.... Severe depressions were least common in artists. All the depressions of the writers were of more than two week's duration, while intellectuals, artists, and politicians—more often than scientists and composers—also experienced brief depressive adjustment disorders. (p. 32)

Illness Rate Studies

In her study on creativity and psychopathology, German researcher Juda (1949) assessed 294 highly gifted persons from a variety of different professions, including 113

artists who had been identified as "highly gifted personalities" by experts in their field. Without benefit of current diagnostic tools, Juda nevertheless determined that 2.7% of this sample had schizophrenia. She did not, however, diagnose any of the subjects with an affective disorder. Furthermore, Juda also described remarkably high rates of psychiatric disturbance among first degree relatives. Slightly fewer than 2% committed suicide. These rates were substantially higher than the rates expected in the general population.

Eisenman's (1992) study on creativity in prisoners compared conduct disordered and psychotic prisoners using the Thematic Apperception Test (TAT) and a complexity-simplicity measure. Subjects were 60 offenders between 14 and 24 years of age. Of these individuals, one-half were diagnosed with conduct disorders. The other one-half were diagnosed with psychotic disorders (16 with schizophrenia, 10 with psychotic depression, 10 with manic-depression). They were assessed individually by a psychometrician who was unaware of their diagnostic status. Prisoners were given five TAT cards: 1 (boy with violin), 4 (man pulling away from woman), 8BM (operation scene), 12M (hypnosis scene), and 13 (man with woman). Participants were also shown photographs of 12 symmetrical and asymmetrical polygons having between 4 and 24 points and were asked to choose the three shapes they most preferred. Scores of 40 or more indicated a preference for complexity, whereas scores of 39 or less indicated a preference for simplicity.

The prisoners included in Eisenman's (1992) study did not seem to be particularly creative. Only 14 (12 conduct disordered subjects and 2 psychotics) indicated a preference for complexity. On the TAT, 25 were rated as creative (19 conduct disordered and 6 psychotics). However, the conduct-disordered prisoners were more creative than their psychotic counterparts. The generalizability of this finding to global conclusions about the relationship between creativity and mental illness is questionable, however, since it is unclear how much psychotic juvenile offenders are representative of psychotic individuals in general.

In a study exploring the relationship between subclinical manic-depressive inclination and creativity, Fodor (1999) assessed a sample of college students using the Remote Associates Test and the Millon Clinical Multiaxal Inventory-III (MCMI-III). Three hundred thirty-five Clarkson University students were evaluated with the Bipolar/ Manic Disorder scale of the MCMI-III, with a score of 11 or higher designating the existence of a manic-depressive inclination and a score of 6 or lower designating its absence. Those individuals who scored between 7 and 10 on this scale were excluded from the study.

Of the remaining 88 participants, one-half were asked to write an essay about an occasion in which they had experienced a "peak performance" (experimental condition), and one-half were asked to write about how they organized their activities during the course of a typical day (control condition). Respondents were distributed across four cells of a 2 x 2 factorial design: (a) individuals with bipolar inclination who wrote about

peak performance, (b) individuals without bipolar inclination who wrote about a peak performance, (c) individuals with bipolar inclination who wrote about organizing activities during a typical day, and (d) individuals without bipolar inclination who wrote about organizing activities. After completing their respective essays, participants were assessed with a mood scale consisting of the following five descriptors: pleased, energetic, confident, enthusiastic, and happy. They were asked to rate the degree to which they were experiencing these feelings by circling a number between 0 (not at all) and 3 (very much). Finally, they were given the Remote Associates Test of Creativity (RAT), a psychometrically-sound inventory that purports to measure creativity by assessing the ability of individuals to make connections between ideas that are semantically remote from one another (Fodor, 1999).

As predicted, those with manic-depressive tendencies who wrote about peak performances had the highest average RAT scores ($M = 18.7$), which is significantly higher than both the scores produced by those with manic-depressive inclinations who wrote about organizing their daily activities ($M = 14.6$) and those without manic-depressive inclinations who wrote about peak performances ($M = 14.7$). Individuals who wrote about a peak performance earned average higher scores ($M = 9.75$) than those who wrote about daily activities ($M = 7.1$). These findings suggest that mood was enhanced by participation in the experimental task (Fodor, 1999).

Andreasen (1987) evaluated a sample of creative writers at the University of Iowa Writer's Workshop in an attempt to determine the prevalence rates of creativity

and mental illness in writers and their first-degree relatives. Over a 15-year period, she assessed 30 faculty members using a structured interview focused on determining their patterns of creativity, history of mental illness, and the existence of these traits among first-degree relatives. A group of 30 control participants from various occupations, matched on age, sex, and educational status, were also assessed. The probands psychiatric diagnoses were made using the Research Diagnostic Criteria, whereas the diagnoses of first-degree relatives were made according to the Family History Research Diagnostic Criteria. Intelligence and cognitive style were assessed in a subset of 15 writers and control participants using the Raven Progressive Matrices (Advanced Set) along with the Wechsler Adult Intelligence Scale (WAIS). Finally, levels of creativity among first-degree relatives were also assessed using two classifications (+creative and ++creative). Relatives earned +creative ratings if they were involved in "somewhat creative" occupations such as journalism or art instruction and ++creative ratings for "well recognized levels of creative achievement" such as writing a novel or engaging in significant scientific discovery.

Eighty percent of the writers reported experiencing an episode of affective illness at some point in their lives, compared with 30 %of the control participants. Forty-three percent of the writers suffered from a type of bipolar illness, compared with 10% of the control group. Interestingly, none of the writers or control group members suffered from schizophrenia, a finding that casts doubt on the claim advanced by others that schizophrenia and creativity are related. Writers did have significantly higher rates of

alcoholism (30%) than did those in the control group (7%). Perhaps even more striking than these statistics is the fact that 2 of the 30 writers committed suicide during the 15-year study (Andreasen, 1987).

However, writers were not only more prone to psychiatric illness,. They were also significantly more likely than were those in the control group to have first-degree relatives who suffered from affective illness. In particular, rates of major depression were significantly higher for their siblings, parents, and all relatives combined. Although rates of bipolar disorder were also higher for writers than for those in the control group, they were not significantly so. In addition to having higher rates of mental illness, first-degree relatives of the writers were generally more creative than were first-degree relatives of those in the control group. Most of the differences between these two groups were contributed by the siblings; 41%of the writer's siblings demonstrated moderate levels of creativity, compared to 18% of siblings of those in the control group (Andreasen, 1987).

No difference was found between the writers and the control group on most measures of intelligence; however, the writers did score significantly higher on the WAIS vocabulary subtest. On the Ravens Progressive Matrices (Advanced Set), a nonverbal test of 36 patterns, all participants did very well and revealed no significant between-group differences (Andreasen, 1987).

The findings of this study support the hypothesis that an inordinately high percentage of eminent creators, particularly writers, suffer from psychiatric illnesses. These results, however, are not generalizable and may not apply to creative individuals

in other disciplines. Additionally, these results raise questions about the relationship between intelligence and creativity. Though members of the control group had levels of intelligence similar to the writers, they were nevertheless significantly less creative, which suggests that intelligence may not be a critical ingredient in the development or expression of creativity (Andreasen, 1987).

Jamison (1989) assessed the pervasiveness of mood disorders and the patterns of creativity in British artists and writers. She selected 47 artists and writers (poets, playwrights, novelists, and biographers) based on their prodigious achievement (i.e., each participant had won at least one awards in his or her respective field). Participants were interviewed extensively and asked open-ended and scaled questions about their psychiatric histories and the types of treatment they had received.

Jamison's (1989) findings support the hypothesis that a significant number of artists and writers suffer from psychiatric illnesses. Thirty-eight percent of the participants reported seeking treatment for an affective illness and, in most cases, had taken antidepressants or lithium or had been hospitalized. This statistic is particularly significant when considering that lifetime prevalence rates for bipolar or unipolar disorders in the population at large are 1% and 5%, respectively. A relatively small percentage of the individuals who suffer from these illnesses actually seek treatment (Weismann, Myers, & Thompson, 1981), which suggests that even the high rates in Jamison's study may be underreported. Interestingly, the rates of affective illness among

biographers were significantly lower than those of their presumably more creative counterparts (e.g., poets, playwrights, and others).

Another relevant finding is that virtually all study participants reported experiencing intense, time-limited episodes in which they were particularly creative and productive (100% of poets, novelists, and artists; 88% of playwrights; and 20% of biographers). Furthermore, 89 % of the artists and writers reported having a decreased need for sleep in the days immediately preceding these creative episodes. These facts lend support to the idea that hypomania may be uniquely related to creativity and creative achievement (Jamison, 1989).

Richards and Kinney (1990) surveyed 48 Manic-Depressive and Depressive Association (MDDA) conference attendees using an extensive questionnaire about moods and personality. The questionnaire included demographic questions and required subjects to endorse the diagnosis that best described them. Although participants were presumed to be well-informed about their diagnoses, a brief supplementary lecture was provided to aid them in reporting accurately. Eleven reported having unipolar depression and were grouped together accordingly, and 28 had bipolar I diagnoses and constituted a group. The third group was comprised of 9 individuals who reported mood swings and hypomania and appeared to suffer from cyclothymia (2) and bipolar II disorder (7). Respondents ranged in age from 18 to 65 years and were highly educated with modal educational levels of 18 years (depression), 16 years (bipolar I), and 17 years (bipolar II).

Participants were asked to endorse their typical "mood states" during the times they experienced optimal levels of sensitivity/alertness, productivity, creativity, good judgment, and concentration. Their options were as follows: extremely depressed, somewhat depressed, normal mood, somewhat elevated, and very elevated. They were also asked to rate the relevance of 23 different characteristics (expansiveness, impulsivity, need for little sleep, interest in socializing, rapid thinking, ease of thinking of new ideas, speed of mental associations, talkativeness, energy, euphoria, religious thoughts or feelings, sexual interests, sensitivity to sensations, irritability, spending of money, anxiety, suspiciousness, argumentativeness, restlessness, positive sense of well-being, self-confidence, intensity of feelings, and enthusiasm) to their "most creative period" (Richards & Kinney, 1990).

Results of this study support the concept that high levels of creativity are related to elevated mood states. Richards and Kinney (1990) conclude that a significant relationship existed between "the presence or absence of mood elevation when most creative, and bipolar/unipolar status" (p. 210). Slightly more than one-half (54%) of the bipolar I group and nearly all (89%) of the bipolar II group reported experiencing their greatest levels of creativity during times of mild mood elevation. In this regard, the bipolar groups contrasted dramatically with the depressive group, 18% of whom reported experiencing optimal creativity during a period of mildly elevated mood. Although the researchers did not do a statistical analysis of the characteristics associated with periods of high creativity due to the small sample size, 10 of the 23 appear to be

closely related to elevated mood states. Specifically, study participants reported that during mildly elevated and very elevated mood states, they experienced the following: expansiveness, impulsivity, need for little sleep, interest in socializing, rapid thinking, fluency (ease of thinking of new ideas), speed of mental associations, talkativeness, energy, and euphoria.

As other studies have shown, these findings suggest that milder (rather than more extreme) elevations in mood seem to encourage and facilitate creativity. Additionally, the data seem to suggest that creative ability has the potential to improve or decline in relationship to the mood state that characterizes an individual at any given time. Indeed, creativity may be more significantly related to the presence of certain emotional states than to an inherent ability as has previously been believed. This finding is particularly important, yet potentially controversial.

In another intriguing British investigation, Weeks and Ward (1989) studied a sample 135 persons who were enlisted through a technique called multimedia sampling. The researchers posted a message soliciting "eccentrics" on billboards, on radio, on television, in newspapers, and in tabloids. Respondents were interviewed, were given mental status examinations and psychological assessments, and completed an original questionnaire pertaining to interests, beliefs, and attitudes. Approximately 95 participants (73%) reported at least one schizophrenic symptom (e.g., delusion, hallucination, thought disorder). According to the researchers, participants were generally creative in a wide range of domains, intellectually curious, and unfettered by logical or

societal constraints. Weeks and Ward also report a relationship between the respondents' degree of originality and the severity of their thought disorders. Although interesting, these findings are of limited value, however, since the study lacked scientific rigor. The inclusion criterion was subjective and open to considerable misinterpretation, and its findings are only anecdotal in nature. Many of the individuals interviewed may have demonstrated marked creative tendencies, but to draw broad generalizations from their reports could be highly misleading.

In general, the illness rate studies suggest that an inordinately high percentage of creative individuals have suffered from psychiatric illnesses and manic depressive spectrum disorders, but they rarely seem to have schizophrenia. This finding appears to support the hypothesis that creativity is related to manic-depressive spectrum disorders, yet does little to illuminate the nature of the relationship between mental illness and creativity.

Discussion

A variety of significant and complicated issues arise when evaluating the relationship between creativity, schizophrenia, and affective illness, which is true in the aforementioned studies. The main issues are those related to defining and measuring creativity. In fact, the assessment of creativity is an endeavor fraught with methodological and theoretical problems (Ford & Harris, 1992). In recent years, numerous scholars have proclaimed creativity research to be dead, whereas others have

continued to argue for its ongoing relevance and utility (Parkhurst, 1999). Although a variety of measures are purported to assess creativity and there may be a very broad consensus about what it entails, creativity continues to be an elusive, ethereal construct that depends on a diversity of variables. The studies reviewed in this paper began with assumptions about what creativity is and are consequently limited by their definitions. Although artistic and literary abilities are typically associated with creativity, the capacities required for achievement in law, business, athletics, and a wide range of other domains may be considered equally creative (Gardner, 1983). In addition, if individuals in the arts are not always prolifically creative, then consistently using them as the comparison group against which others are judged, as many studies do, may be invalid. Future research should focus less exclusively on those in the artistic community, but should include individuals who have demonstrated high levels of innovation and intellectual novelty in other disciplines as well.

Equally perplexing are questions pertaining to whether creativity should be thought of as a state or a trait. Although many creative individuals may have certain life-long propensities toward originality, complexity, and "thinking outside the box," these abilities may be accentuated at certain times and places and during particular mental states (e.g., mania). Similarly, affective disorders may be more or less severe at one time even though they may frequently plague their sufferers throughout the life span. Considering the fluid nature of psychiatric illness as well as the possible ebb-and-flow quality of creativity, the relationship between these two constructs should be carefully

weighed in the abstract rather than viewed as concrete, unchanging conditions. Numerous researchers (Richards & Kinney, 1990; Shapiro & Weisberg, 1999) have recognized that creativity and psychiatric illness are dynamic rather than static. Taking this into account, they have asked respondents to rate their levels of creativity during recent or remote periods of peak performance; however, reliance on historical recollection raises questions about the accuracy and legitimacy of their findings.

Assessment of the relationship between creativity and intelligence also raised the question of how dependent creativity is on intelligence although the two concepts are frequently considered to be distinct (MacKinnon, 1965). Referring to Terman's seminal study in the 1920s that tracked the adult development and achievement of a group of school-age children who had IQ scores of at least 140, Andreasen (1978) states,

> Terman's "geniuses" have typically been above population norms in almost all ways: they are bigger, stronger, physically and emotionally healthier, and more successful both economically and socially. They have less psychiatric illness and less divorce, although they have had a higher suicide rate than population norms. Some have made notable and creative contributions...but generally the group does not contain a large number of successful writers, musicians, or artists or of innovative scientists or mathematicians. Thus while Terman's study seems to indicate that there is a negative correlation between genius defined as high IQ and psychiatric illness, it has also indicated that people with high IQs are not necessarily artistically or scientifically creative. (p. 25)

Even if brilliant individuals are not always prolifically creative, it does not necessarily follow that creativity is not dependent on intelligence—at least to a certain extent. Although intelligence may not be sufficient, it may nevertheless be necessary for creative endeavors. Despite this, however, relatively few studies (Eisenman, 1990) discussed in this review examined or attempted to account for the degree to which intelligence may have been a confounding variable. Comparisons of eminent or highly accomplished individuals to psychiatric patients or mentally ill individuals may, in fact, be like comparing the proverbial apples and oranges. A better comparison might be between manic-depressive or schizophrenic patients who have high IQs and accomplished writers or professionals. Unfortunately, a sizeable psychiatric sample with such qualifications may be difficult to find.

Another difficulty is diagnostic uncertainty. Several studies (Post, 1994; Schildkraut, 1994) were based on evaluations of historical evidence, which is subjective and open to broad interpretation. This is particularly relevant in regard to diagnoses such as bipolar disorder which may have wide-ranging and idiosyncratic manifestations. Furthermore, bipolar illness may not be a unitary phenomenon, but one that exists on a continuum. As Shapiro and Weisberg (1999) suggest,

> Bipolar disorder is more accurately a spectrum of disorders, ranging from soft or subsyndromal expressions to full-blown manic-depressive illness (Akiskal & Malya, 1987; Akiskal,1988). The spectrum includes bipolar I, bipolar II, bipolar III, cyclothymia, and hyperthymia. Bipolar I is a full-blown manic-depressive

> illness and is characterized by recurring episodes of mania and major depression. In bipolar II, the individual experiences recurrent episodes of severe depression, but only the milder and less impairing mood elevations of hypomania. Bipolar III is a predominantly depressive disorder in which hypomanic episodes appear only after treatment with antidepressant medication. Cyclothymia (literally "cycling mind") is characterized by alternating mild depressions and hypomania. In hyperthymia, individuals experienced repeated mild hypomania but no depressive episodes at all (Akiskal, 1988; Richards, 1994). Of these disorders, cyclothymia is the least severe clinical manifestation of a bipolar disorder, while hyperthymia is a nonclinical, essentially positive expression of a genetic predisposition to bipolarity. (p. 742)

If there is no such thing as a generic phenomenon called manic-depression, but only multiple expressions of this illness across a spectrum, then it is difficult to speak definitively and draw conclusions about the relationship between manic-depression and creativity. Recent research (Shapiro & Weisberg, 1999) has been sensitive to this problem and has attempted to assess subclinical varieties of affective illnesses.

In addition to the design, properties, or weaknesses of the aforementioned studies, other questions arise regarding the interpretation and evaluation of results. A cursory reading of the evidence may lead readers to the conclusion that among individuals who exhibit psychosis or affective illness and high creativity, the characteristics of the psychiatric illness are what facilitate the creativity. This explanation seems reasonable,

particularly when one considers that there are characteristics associated with mania that might be advantageous to artists, writers, and inventors. It must be recognized, however, that the relationships between mental illness and creativity are correlational rather than causal. Another more subtle conclusion would be that the relationship is an illusory one and that creativity and mental imbalance are the expressions of a larger, more fundamental personality style. As Rhodes et al. (1995) maintain,

> Despite some extreme claims that creative people are fundamentally degenerate or that psychotic breakdown is in fact healthily creative, it seems likely that if there is a link between creativity and psychosis it is due to certain psychological characteristics that predispose to both rather than to psychotic illness itself facilitating creativity: indeed acute mental illness is likely to be incompatible with creative performance. (p. 312)

Yet another possibility is that creativity is not the result of an affective state but a condition that contributes to the affective state. In this view, something inherent in the creative process causes individuals to function without sleep, generate scores of ideas, and immerse themselves in a variety of projects. As Shapiro and Weisberg (1999) suggest,

> It is not clear at what point one should distinguish low level expressions of an underlying mood disorder from the normal affective variability which accompanies creative activity. That is, it might be the case that affective states reported by creative individuals are the result of their creative activity, rather

> than symptoms of an underlying diathesis which positively affects the creative process. This potential confusion makes it necessary to establish that a given creative individual, who reports affective symptoms, is indeed liable for bipolar disorder. It is this distinction that seems essential if one is to demonstrate a clear relationship between creativity and bipolar diathesis. (p. 743)

Various scholars have suggested that there may be characteristics that mentally ill individuals—particularly those who suffer from bipolar disorder—possess in large measure that may contribute to their high levels of creativity. As Richards and Kinney (1990) have indicated,

> Akiskal, Hirschfeld and Yerevanian noted a hard-driven work-orientation among bipolar individuals. The work tendency is supported by our own research where it were the cyclothymes who showed the highest vocational creativity, and the normal relatives of bipolars excelled in leisure time creativity. . . An obsessive drive turned toward the vocational arena would be more likely to affect others, even society at large, and could consequently raise the chance of social recognition. Recognition of important creative strengths could also provide needed external validation for persons with a fluctuating experience of themselves. (p. 207)

The research may also be biased in favor of certain kinds of people pursuing traditional creative vocations such as writing, painting, or sculpting. These are frequently solitary, obsessive pursuits that require substantial commitments of time and energy and

promise financial or recognition-related rewards to only a few. It should not be surprising that the individuals who are attracted to these pursuits and devote themselves to such careers may be different from most of their peers. Their creative abilities may not necessarily be fueled by psychopathology, but may be indicative of certain intrinsic characteristics (e.g., the ability to work in isolation, the freedom to take significant risks without promise of future benefits) that predispose them to chose artistic endeavors.

Although the focus of the aforementioned studies is on creativity and mental illness, many successful artists, writers, inventors, and others have no psychiatric histories. Such mentally healthy creators may be in the minority, but they deserve to be the subjects of more scholarly inquiry than they have been thus far. Their healthy functioning is significant since it casts doubt on any assumption that the relationship between creativity and emotional imbalance is a necessary one.

Conclusion

Though the complicated relationship between creativity, affective illness, and schizophrenia is difficult to understand, both definitive and tentative conclusions can be drawn from the research. Perhaps the clearest conclusion is that many individuals suffering from affective illnesses (primarily those on the bipolar spectrum and more infrequently those with unipolar depression) appear to have greater creative potential and ability than their normal counterparts (matched on intelligence, education, etc.) and are prone to actualizing it if certain conditions exist (Andreasen, 1978, 1987; Jamison,

1989). This ability appears to be dynamic; that is, it is manifested more significantly during some periods, instances, and affective states than others, particularly when an individual's mood is mildly or moderately elevated (Fodor, 1999; Shapiro & Weisberg, 1999). The origins of these abilities are in question although various theories have been proposed. Richards et al. (1988) and Andreasen (1987) have suggested that the relationship between bipolar illness and creativity is genetic. Others have offered alternative explanations. Jamison (1989), in particular, has suggested that the unique characteristics of bipolar illness may encourage prolific creativity:

> For writers and artists, who draw so deeply from their lives and emotions for their work, the wide range, intensity, fluctuation and variability of emotional experience brought about by mood disorders can work to the advantage, as well as disadvantage, of original composition. Too, what hypomanics generate in enthusiasm and excess, the more critical and obsessive eye of depression often effectively judges and edits. (p 131)

It is important to note that the musings of experts about why and how affective illness may predispose individuals to creativity are working hypotheses that require a solid empirical basis despite their logical and theoretical structure. Evidence regarding the relationship between mental illness and creativity can answer descriptive questions but cannot provide reasons why this relationship seems to exist.

Another definitive finding is that artists and writers suffer from affective illness more frequently than the general population. Researchers (Andreasen, 1987; Jamison,

1989) have documented the fact that artists and others believed to be prolific creators have higher rates of unipolar depression and bipolar spectrum illness as well as treatment histories (e.g., psychiatric hospitalization, involvement in psychotherapy) than do others in the general population.

Although some researchers and theorists have suggested that paranoid schizophrenia is associated with creativity, empirical investigations have been limited, and the findings lend little support to this proposition (Agarwal, 1987; Eisenman, 1990). In many instances, persons with schizophrenia may appear to be highly creative, but most contemporary linguists take issue with the notion that they are (Chaka, 1974). These individuals' initial responses in word-association tasks, for example, are frequently extremely unusual, though they are unable to identify unusual associations when they see them. In some rare cases, schizophrenic individuals do indeed demonstrate high levels of creativity and originality. During the remission phases of their illness, they may be particularly creative, but it is unclear whether or not this has any relevance to their illnesses (Keefe & Magaro, 1980). More frequently, their negative symptoms (e.g., poverty of speech, lethargy) tend to limit their creativity more than encourage it (Gartner, 1998). Undoubtedly, psychotic ramblings may frequently be interesting and unusual and appear to reflect a degree of inventiveness that is difficult to duplicate. Thorough scrutiny of these elaborate constructions and odd forms of communication, however, reveals that these individuals tend to lack the intentionality, structure, and artistry of creative endeavors (Gardner, 1988).

After decades of increasingly sophisticated research, the madness/genius controversy continues even though it may be a bit less mysterious than it once was. Creativity and mental illness do, in fact, appear to be related given specific conditions. At the same time, most people who populate psychiatric hospitals or have diagnosable mental disorders are not considered to be uniquely creative. For every Ernest Hemingway, there are scores of ordinary individuals who suffer from psychiatric conditions and lack the ability to write a poem, paint a canvas, or develop an idea that is novel, unusual, and innovative.

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