Research Article

GENIUS AND MADNESS?
A Quasi-Experimental Test of the Hypothesis That Manic-Depression Increases Creativity

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Abstract—*Much evidence has been adduced to support the view, originally proposed by Kraepelin, that mania increases creativity. Examples of supporting evidence are findings of similarity in thought between creative persons and manic-depressives and high creativity in normal relatives of manic-depressives. However, such data are correlational and are therefore equivocal concerning the hypothesis that mania is a cause of increased creativity. The present study analyzed the relationship between mood and productivity in the career of composer Robert Schumann, who has been diagnosed as bipolar. Schumann's positive mood was related to increased quantity of his work but not to increased quality, indicating that mania did not increase creativity of thought processes.*

Great wits are sure to madness near allied;
And thin partitions do their bounds divide.
—John Dryden, "Absalom and Achitophel," lines 163–164

Creative individuals produce works of which ordinary individuals are not capable: great works of art, revolutionary scientific theories, and valuable inventions. It has long been a basic assumption of theories of creativity that the creative individual has access to ideas that are beyond the ordinary person. In early thinking about creativity, access to novel ideas was attributed to intervention of the gods, as in the Greek view that the Muses provided "inspiration," that is, breathed creative ideas into the person, who only served as a conduit.

A related perspective, also with a long history, is that novel ideas are the result of the thinker's being overcome by madness, which is often traced to Plato's claim that the poet in the throes of creation is mad (Kessel, 1989). Plato's original formulation was that the madness of the poet was the result of possession by the Muses—a "divine" madness. He distinguished between this form of madness and that brought about through disease (i.e., insanity). However, more recently, interest has focused on the latter form of madness as a possible basis for creativity, as exemplified by Kraepelin's (1921) classic study of "manic-depressive insanity," in which he hypothesized that mania might bring about changes in thought processes that would result in increased creativity of thinking:

> The volitional excitement which accompanies the disease may under certain circumstances set free powers which otherwise are constrained by all kinds of inhibition. Artistic activity namely may, by the untroubled surrender to momentary fancies or moods, and especially poetical activity by the facilitation of linguistic expression, experience a certain furtherance. (p. 17)

Kraepelin's comment, that mania may "set free powers" in the thinker, clearly assumes that mania can produce qualitative changes in thinking, that is, changes in the kinds of ideas that the person produces.

Jamison and her colleagues (Goodwin & Jamison, 1990; Jamison, 1989; Jamison, Gerner, Hammen, & Padesky, 1980), among other investigators, have been recent advocates of Kraepelin's view, and have discussed in detail the relation between mood changes and creativity, and how mood changes might enhance creativity of thought. Similarly to Kraepelin, Goodwin and Jamison (1990, p. 339) refer to the thought processes as being "loosened" by hypomania.

DIAGNOSTIC CRITERIA FOR AFFECTIVE DISORDERS

The bipolar disorders (manic-depression [Bipolar I], cyclothymia, and bipolar disorder not otherwise specified [Bipolar II]) differ mainly in severity and duration of symptoms (American Psychiatric Association, 1987). Manic-depression is characterized by manic periods of highly elevated mood and related symptoms; these periods may alternate with periods of major depression, characterized by loss of interest and pleasure in usual activities, lack of energy, loss of sleep, and feelings of worthlessness and suicidal thoughts. In cyclothymia (literally, "cycling mind"), there are periods of hypomania (elevated mood) and dysthymia (lowered mood) over at least 2 years, but the full manic or depressive syndrome is not present.

CLINICAL EVIDENCE RELATING AFFECTIVE DISORDERS AND CREATIVITY

Tests of Kraepelin's hypothesis have come from several different sorts of investigations, which have attempted to demonstrate a positive relation between creativity and various aspects of bipolar disorder. The following brief review gives the flavor of this research.[1]

Similarities in Thought in Mania and Creativity

Jamison (1989) found that creative individuals, especially poets, reported that their psychological and physiological states

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1. I am preparing a complete critical review of this literature for publication.

during periods of great creative productivity were very similar to those during a manic period. Jamison also found seasonal patterns for productivity and affective state summarized over 3 years, as reported by her poet subjects on the basis of their recollections and their examination of their notebooks and other records.

Creativity in Bipolar Individuals and Bipolarity in Creative Individuals

Richards, Kinney, Lunde, Benet, and Merzel (1988) studied the level of creativity in manic-depressive and cyclothymic patients, in these patients' normal relatives, and in two control groups: normal subjects and psychiatric patients who had not been diagnosed for affective disorder or schizophrenia. The highest level of creativity was found in the relatives of patients diagnosed for manic-depression, with the manic-depressive patients scoring lower, although still higher than the normal control subjects and the other patients.

Andreasen (1987) investigated frequencies of psychopathology in family histories of participants in the Iowa Writers' Workshop. Control subjects were individuals from outside the arts matched with the writers for age, education, and sex. There was a higher rate of affective disorder in the writers than in the control subjects, with a large majority of the former experiencing an affective disorder of some sort at some time in their lives, and almost half experiencing a bipolar disorder. Jamison and her colleagues have reported a high degree of bipolar affective disorder in many samples of creative people, especially poets, and a very high frequency of suicide in creative individuals, especially in modern poets of great renown (Goodwin & Jamison, 1990; Jamison, 1989; Jamison et al., 1980).[2]

As Andreasen (1987) noted, these investigations of the possible positive relationship between manic-depression and creativity have focused on the positive influences of psychopathology, which is a change in orientation from that of the humanistic psychologists (e.g., May, 1975; Rogers, 1954/1959), who argued that creativity is the outcome of the well-adjusted individual's fulfilling his or her potential to the utmost.

PROBLEMS IN INTERPRETATION OF CLINICAL DATA

This very brief review indicates that a number of different sorts of evidence have been presented in support of the hypothesis that mania results in increased creativity of thought. However, there are problems of interpretation concerning all the data of the types just cited. For example, Jamison's (1989) findings, that periods of creative productivity are phenomenologically similar to manic states, and that there are seasonal patterns for productivity and affective states of creative individuals, are not differentially supportive of the hypothesis that mania results in increased creativity of thought. In order to support Kraepelin's hypothesis, it is necessary to show that during the maniclike states of creative production, qualitative changes occur in thought processes, and Jamison's analysis does not show this.

Further, the finding that there are significant differences in the frequency of bipolar affective disorder between creative samples and the general population provides no support for Kraepelin's hypothesis that mania is the cause of the creativity exhibited by the samples in question (see also Richards, 1981; Richards & Kinney, 1990). The cited studies are all of necessity correlational, not experimental, and therefore provide no evidence concerning cause versus effect.

In sum, in order to provide support for Kraepelin's hypothesis, it is necessary to go beyond correlational studies, to an experimental design that allows more control over independent variables. Although it is not possible to carry out a true experimental investigation of the relationship between mania and creative thinking, an attempt is made in the next section to approach that ideal through a case study of an individual of acknowledged creativity who was also diagnosed as manic-depressive: the composer Robert Schumann (1810–1856).

A HISTORICAL CASE STUDY OF BIPOLARITY AND CREATIVITY

Schumann is generally acknowledged to have suffered from bipolar disorder (e.g., Goodwin & Jamison, 1990; Henahan, 1986; Slater & Meyer, 1959),[3] and Goodwin and Jamison (1990, chap. 14) discussed his having the disorder as additional evidence for the positive effect of mania on creative thought processes. Schumann may have exhibited suicidal tendencies as early as 20 years of age (Henahan, 1986); he made at least two unsuccessful attempts at suicide, and he died at age 46 of self-starvation in an institution. In addition to manic-depression, he probably suffered from syphilis (Slater & Meyer, 1959), which in the last several years of his life resulted in a severe, general physical and mental decline.

Schumann discussed the manic and depressive aspects of his personality in his letters, and he created two musical alter egos to represent these aspects in his compositions: Florestan, "with a head so full of ideas that I cannot actually form any of them" (quoted in Goodwin & Jamison, 1990, p. 340), and Eusebius, an introspective dreamer. Schumann's family was also troubled psychologically: His older sister became mentally ill by age 17 and drowned herself at 29; one of his sons spent 30 years in an asylum (Slater & Meyer, 1959).

The relationship between Schumann's mood and output over his career is presented in Figure 1 (adapted from Slater & Meyer, 1959). The compositions tabulated for each year are based on dates of completion rather than publication. From

2. It should also be noted that there are data available concerning frequency of manic-depression in creative individuals that do not support Jamison's findings (Kessel, 1989).

3. There is some discrepancy in the literature concerning the exact diagnosis of Schumann's illness. Several authors (e.g., Goodwin & Jamison, 1990) have concluded that he suffered from manic-depression, but Slater and Meyer (1959), whose diagnosis served as the basis for Goodwin and Jamison's discussion of Schumann, seemed to diagnose the illness as cyclothymia. This issue is not crucial to the present discussion, because significant mood changes occur in both conditions. In this report, I refer to Schumann's negative mood state as depression.

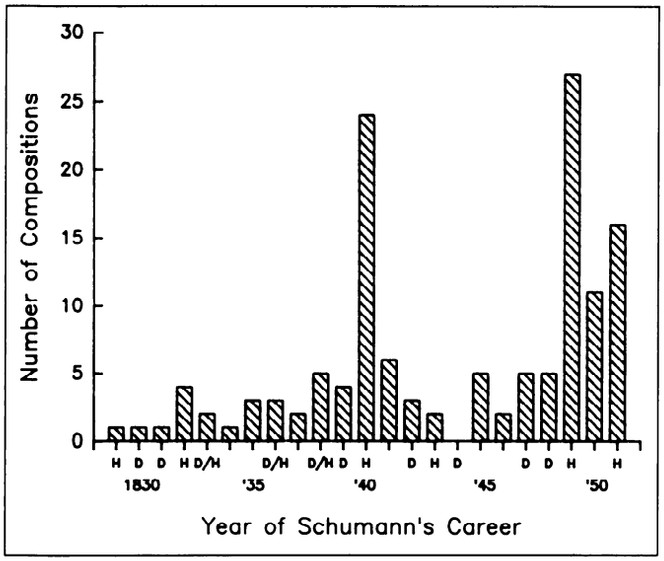

Fig. 1. Robert Schumann's productivity and mood state over his career. Diagnoses: D = depressed; H = hypomania; D/H = mixed.

biographical information, medical records, and Schumann's correspondence, Slater and Meyer concluded that for a number of years in his career, there was a single dominant mood. As indicated in Figure 1, there is a strong positive relationship between Schumann's mood and quantity of output (see also Goodwin & Jamison, 1990, p. 347). For example, during the 3 years with by far the greatest numbers of compositions, Schumann was hypomanic, and the years of depression resulted in low productivity.[4]

Statistical analysis of the numbers of compositions for the hypomanic versus depressive years during Schumann's career, summarized in Table 1, indicates that during periods of hypomania, he produced on average more than four times as many works as he did during periods of depression. This difference in total output, although based on a relatively small number of years in each diagnostic category, is significant, $t(11) = 2.16$, $p < .03$ (one-tailed). Thus, although Slater and Meyer's (1959) diagnosis of Schumann's mood was based on historical records, there is support for it in the significant relationship between mood and productivity, which also on its face supports Kraepelin's (1921) hypothesis of a link between positive mood and creativity.

4. Slater and Meyer (1959) argued that over the last 5 years of Schumann's life, his mental capacities were significantly interfered with by general paresis, brought on by the late stages of syphilis, and that his musical composition was essentially wiped out by the disease. This would make questionable any analysis examining the quality of Schumann's works for these years. However, if he still suffered mood swings, these years might still be relevant to the present analysis. Therefore, each analysis reported was carried out twice, once using only the years in Figure 1, which is the analysis that is discussed, and once including the last 5 years. The pattern of results was the same in both cases: No difference that was significant in one analysis was not significant in the other, and vice versa.

However, as Goodwin and Jamison (1990, p. 347) noted, the data in Figure 1 and Table 1 allow conclusions only about the influence of hypomania on the quantity of Schumann's compositions. The tabulation is based solely on number of compositions per year; no attempt was made by either Slater and Meyer (1959) or Goodwin and Jamison (1990, chap. 14) to analyze the quality of Schumann's compositions for the various years in his career. However, only an analysis of this latter sort would enable one to test Kraepelin's hypothesis that during Schumann's hypomanic years he produced a greater proportion of high-quality compositions than during depressed or neutral years. I have carried out such an analysis, to which I now turn, and it does not support Kraepelin's hypothesis.

An "Archival" Measure of Quality

In an often-cited examination of the development of skills of musical composition, Hayes (1981) used, as a measure of the quality of a musical composition, the number of recordings of that composition listed in the *Schwann* catalogue of recordings. In Hayes's view, this number represented the combined judgments of musicians, recording companies, and the record-buying public. Hayes used this measure to analyze the relationship between expertise and quality of musical composition.

Following Hayes's lead, for the present investigation, I used *The Schwann Guide* (1990) and *The New Penguin Guide to Compact Discs and Cassettes* (Greenfield, Layton, & March, 1988) to determine how many recordings were available for each of the works produced in each year of Schumann's career. The *Schwann Guide* lists recordings of any type (e.g., records, compact discs, and cassettes), and so presents a broad analysis of quality. For this listing, *absolute quality* for a given year was

Table 1. *Summary of the relationship between Schumann's mood and productivity*

Year	Number of compositions
	Depression
1830	1
1831	1
1839	4
1842	3
1844	0
1847	5
1848	5
Mean	2.7
	Hypomania
1829	1
1832	4
1840	25
1843	2
1849	28
1851	16
Mean	12.3

defined as the total number of recordings available for all compositions for that year. However, because this measure could simply reflect the total number of compositions produced in a given year, the analysis was carried one step further: *Relative quality* for a given year was defined as the average number of recordings available for each composition for that year, a variable that is independent of the number of compositions per year.

The Penguin listing was published when compact discs were still relatively new, so there was some selectivity in what was being recorded. Any works listed would therefore tend to be those that were of interest to a relatively broad spectrum of music lovers, which might produce different results than the *Schwann Guide*. For a measure of the absolute number of high-quality compositions for a given year of Schumann's career, the *Penguin Guide* was used to determine for that year the total number of compositions that were listed at least once. For a measure of the relative quality for a given year, the *Penguin Guide* was used to determine for that year the proportion of works that were listed at least once, a variable that controls for the absolute number of compositions per year.

Thus, these measures allow one to determine, for each year of Schumann's career, the absolute number and the relative proportion of high-quality compositions produced. These numbers can be used to determine whether a particular year was a "good" one, in the sense that it resulted in a relatively large proportion of compositions of high quality. Figures 2 through 5 present the absolute and relative measures of quality from the *Penguin* and the *Schwann* guides for each year of Schumann's career.

Reliability of Measures of Quality

From Figures 2 through 5, it is clear that there is a substantial correlation between the *Schwann* and *Penguin* measures of absolute quality and between the two measures of relative quality. Furthermore, there is a relationship between each of these measures and year of Schumann's career, and between Schumann's productivity and year of career. The total number of compositions per year (Fig. 1) tends to increase over the career, as does the absolute quality (Figs. 2 and 3), especially based on the *Penguin Guide*, but the relative quality tends to decrease (Figs. 4 and 5). The obtained correlations are as follows: number of compositions per year and year of career, +.50; absolute quality and year of career, +.24 for *Schwann*, +.46 for *Penguin;* relative quality and year of career, −.23 for *Schwann*, −.21 for *Penguin*.

These consistent patterns of correlations, although not all significant, mean that any correlations between quantity and

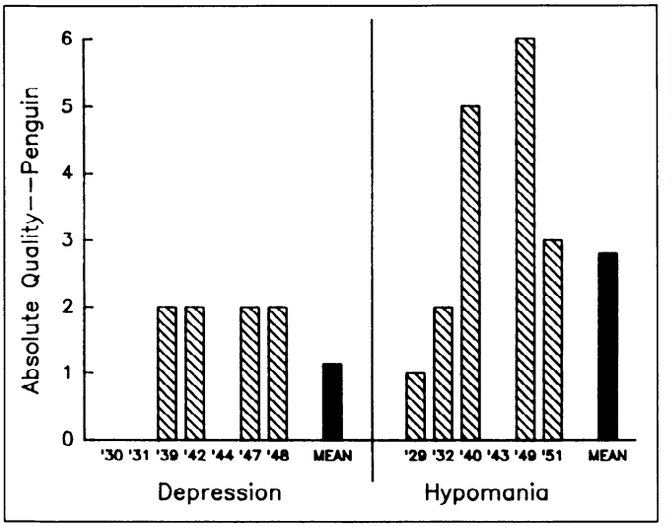

Fig. 3. Absolute quality of Schumann's compositions: number of compositions from each year listed in the *Penguin Guide*.

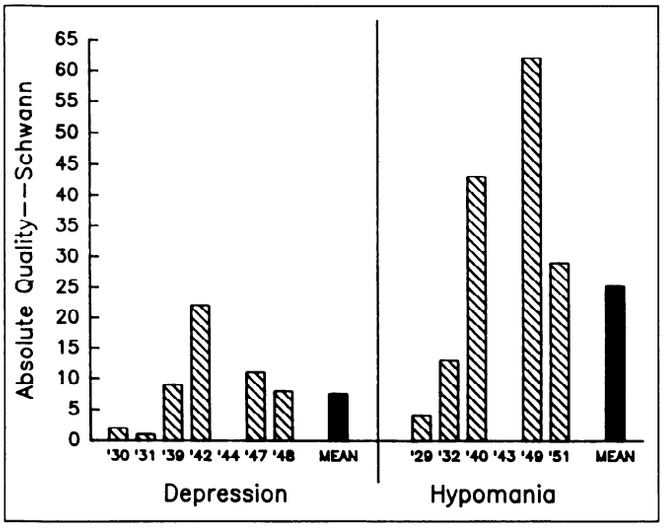

Fig. 2. Absolute quality of Schumann's compositions: total number of recordings listed in the *Schwann Guide* for compositions produced in each year.

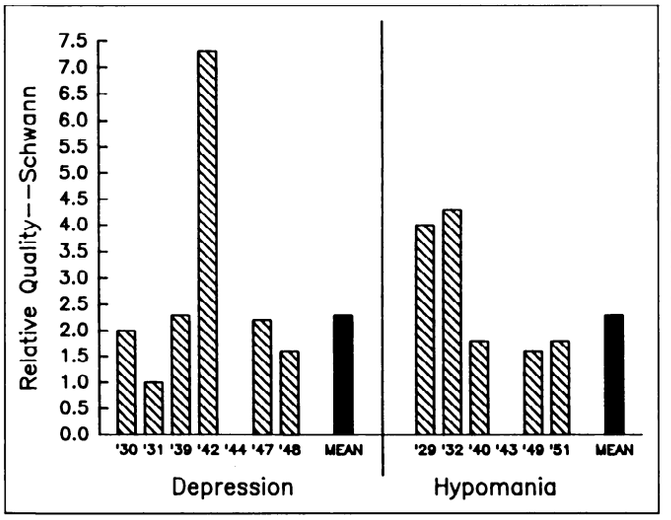

Fig. 4. Relative quality of Schumann's compositions: average number of recordings listed in the *Schwann Guide* for compositions from each year.

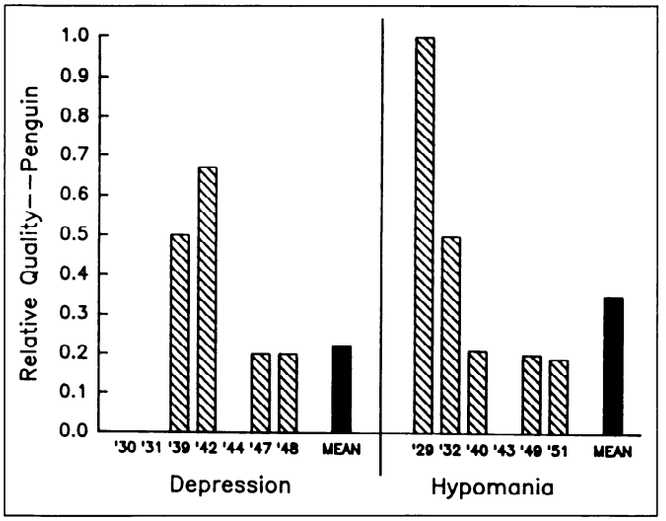

Fig. 5. Relative quality of Schumann's compositions: proportion of compositions from each year listed in the *Penguin Guide*.

the measures of quality will be contaminated by the relationship between each of these and year of Schumann's career. Therefore, all the correlations reported henceforth are partial correlations, controlling for the relationship between year of career and the variables of interest. (However, the results of all analyses presented remain the same if one does not use partial correlations.)

The partial correlation, with year of career held constant, between the *Penguin* and *Schwann* absolute measures of quality is +.86; the partial correlation between the two relative measures is +.59. With 22 degrees of freedom, both correlations are highly significant ($p < .01$ in each case). Thus, the *Schwann* and *Penguin* measures are measuring similar characteristics.

Testing Kraepelin's Hypothesis That Mania Increases Creativity

If Schumann's mania increased his creativity, then his best works should have been produced during manic periods. Statistically, the highest proportion of compositions of high quality should have occurred during such periods. A straightforward test of this prediction is to examine the relative proportions of works of high quality for the years with hypomanic versus depressive diagnoses, shown in Figures 4 and 5: The proportion of high-quality works should be higher for the years during which Schumann was hypomanic. For both measures of relative quality, however, the difference between hypomanic years and depressed years was not significant (*Schwann:* $t[11] = 0.00$; *Penguin:* $t[11] = 0.76$; both $ps > .05$, one-tailed).

As a second test of Kraepelin's hypothesis, one can compute across Schumann's career the correlation between the absolute number of works in each year, regardless of quality (as was shown in Table 1, this is a reliable index of Schumann's mood), and the proportion of works in each year that are of high quality. This correlation should be positive and significant, which would mean that the proportion of high-quality works in a given year increased with mania, as represented by the total number of works in that year. It should be noted that it would not be enough that the absolute number of good works increased when Schumann's mood became more positive, as shown in Table 1, because in itself this might mean nothing more than that his speed of composition increased, with no change in the thought processes involved.

The partial correlations between total number of compositions and their relative quality for each year of Schumann's career for both measures of relative quality are presented at the top of Table 2. The results do not support Kraepelin's hypothesis. For both measures of relative quality, the obtained correlations do not differ from zero, and are in the wrong direction: *Schwann,* −.11; *Penguin,* −.01.

These analyses indicate that the proportion of high-quality compositions was essentially constant over the years of Schumann's career, a conclusion consistent with the analysis reported by Dennis (1966), and elaborated by Simonton (1984). Dennis found that over a career there tends to be a constancy in the probability that an individual will produce great works. During the years in which relatively large numbers of great works are produced, large numbers of minor works are also produced.

Other Possible Relations Between Affect and Creativity

When the negative results concerning the relationship between Schumann's mood state and the creativity of his thinking are combined with the interpretational difficulties surrounding the correlational data that have been presented in support of Kraepelin's hypothesis, there turns out to be no unequivocal supporting evidence. It therefore becomes of interest to use these data to examine other hypotheses concerning the possible relationship between affective state and creativity. One hypothesis is that depression, not mania, increases creativity. Another is that positive mood state increases motivation, but has no effect on creativity of thinking.

Richards (1981) hypothesized that, contrary to Kraepelin, depression might increase the creativity of artistic output. During depression, the individual is withdrawn from the outside world, which might increase the likelihood that new ideas could "bubble up to the surface." One would then expect a significantly higher proportion of high-quality compositions during depressed years and a significant negative correlation between the number of works Schumann produced during a given year and the quality of those works, again measured as a proportion: During depression, Schumann should have produced few works, but they should have been good ones. This prediction is simply the inverse of Kraepelin's prediction concerning mania and quality of production.

The results do not support this hypothesis either. There is no significant difference between the proportion of high-quality compositions during depressed versus hypomanic years (Figs. 4 and 5), and negative correlations between quantity and relative quality of Schumann's output are insignificant (Table 2).

It is also possible that the ideas gathered during a state of depression do not bear fruit in actual output until the depression has passed. If so, then one would expect a significant negative

Table 2. *Correlations predicted on the basis of various hypothetical relations between mood and creativity, and the coefficients obtained*

Causal relation	Predicted correlation	Prediction confirmed?
Mania increases creativity	Positive correlation between number of compositions and proportion of high-quality compositions in each year	No: *Schwann*, −.11; *Penguin*, −.01
Depression increases creativity	Negative correlation between number of compositions and proportion of high-quality compositions in each year	No: *Schwann*, −.11; *Penguin*, −.01[a]
Depression increases creativity in a subsequent year:		
Lag of 1 year	Negative correlation between number of compositions in a given year and proportion of high-quality compositions in the next year	No: *Schwann*, −.09; *Penguin*, −.07
Lag of 2 years	Negative correlation between number of compositions in a given year and proportion of high-quality compositions in the next year plus 1	No: *Schwann*, −.06; *Penguin*, −.01
Mood increases only motivation	All above correlations not significant	Yes: *Schwann*, −.11, −.09, −.06; *Penguin*, −.01, −.07, −.01
	Positive correlation between number of compositions in a given year and *number* of high-quality compositions in that year	Yes: *Schwann*, +.59*; *Penguin*, +.81*

[a]These correlations are the same as those immediately above (see the text).
* $p < .005$, one-tailed.

correlation between the quantity of Schumann's works in a given time period (low numbers indicating depression) and the proportion of high-quality works in later time periods. For example, if we assume that Schumann's recovery period from depression was a year, then the prediction would be that the more depression in a given year, the more good works in the next year (or perhaps the year after the next, if the recovery period were 2 years).

This hypothesis can be tested by computing a time-lagged correlation coefficient between the quantity of works in a given year and the relative quality of the works produced in the next year, or in the next year plus 1 (Simonton, 1984). As shown in Table 2, these two correlations were not significantly different from zero for either the *Penguin* or the *Schwann* measure, and thus provided no support for either variation of the depression-plus-time-lag hypothesis. Of course, the present analysis is limited by the fact that Slater and Meyer (1959) used the calendar year as their unit of time. If Schumann's recovery period was shorter than a year, then a possible significant relation between depression and later productivity would be missed.

Finally, if affective state were related only to motivation, and not directly to creativity, then during Schumann's manic phases his total output should have increased (i.e., there should have been a quantitative change in output), but the quality of work should not have changed. One would then expect an increase in the absolute number of high-quality compositions as his mood became more positive, but the proportion of high-quality works during a given year should not change. As can be seen in Figures 2 and 3, the absolute measures of quality greatly increase with positive changes in affective state, by a factor of almost 4 for the *Schwann* measure ($t[11] = 1.83$, $p < .05$, one-tailed) and a factor of 2 for the *Penguin* measure ($t[11] = 1.71$, $p < .06$, one-tailed). However, as was shown earlier in testing Kraepelin's hypothesis, there was no change in the relative proportion of high-quality works as Schumann's mood changed (see Figs. 4 and 5). This pattern of results is consistent with the hypothesis that Schumann's mood affected only his level of motivation, and not the creativity of his thought.

Another prediction from this motivational hypothesis is that there should be a significant positive correlation between the total number of works produced during a given year and the absolute number of high-quality works for that year. These correlations, presented in the last row of Table 2, are indeed positive and highly significant, as predicted by the hypothesis. In addition, according to this hypothesis, there should not be a significant correlation, positive or negative, between quantity and proportion of high-quality work over the years of Schumann's career, because this ratio would remain constant if mania increased only the amount of Schumann's productivity, but not its quality. The data confirm this prediction as well (see Table 2).

The most straightforward conclusion from the results in Table 2 and Figures 2 through 5 is that Schumann's mood affected the quantity of his work, but not its quality. Thus, in this case,

genius and madness are not causally linked, although the correlation between Schumann's productivity and mood presented in Figure 1 and Table 1 has elsewhere been interpreted as supporting the claim that mania increased the creativity of his compositional processes (Goodwin & Jamison, 1990). By differentiating between measures of absolute and relative quality, however, the present analysis has led to the conclusion that Schumann's mood had no effect on the quality of his thought.

CONCLUSIONS

The hypothesis that madness causes creativity has a long history and is today the subject of much research, but the present analysis has shown little support for it. In the past, it has been supported by anecdotes concerning the bizarre behavior of individuals who have achieved eminence in creative fields. When one tries to go beyond anecdotal support, as have recent investigations, difficulties arise because of the correlational nature of much of the data, such as comparisons of the frequency of affective disorders in different samples of individuals. Furthermore, one set of data that allows one to go beyond correlations, from Schumann's career, turns out not to support the hypothesis. On a more positive note, however, the present investigation indicates that it is possible to apply quantitative methods to case-study material, which allows more rigorous tests of causal hypotheses than have been carried out heretofore.

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REFERENCES

American Psychiatric Association. (1987). *Diagnostic and statistical manual* (3rd ed., rev.). Washington, DC: Author.

Andreasen, N.C. (1987). Creativity and mental illness: Prevalence rates in writers and their first-degree relatives. *American Journal of Psychiatry, 144*, 1288–1292.

Dennis, W. (1966). Creative productivity between the ages of 20 and 80 years. *Journal of Gerontology, 21*, 1–8.

Goodwin, F.K., & Jamison, K.R. (1990). *Manic-depressive illness*. New York: Oxford.

Greenfield, E., Layton, R., & March, I. (1988). *The new Penguin guide to compact discs and cassettes*. London: Penguin.

Hayes, J.R. (1981). *The complete problem solver*. Philadelphia: Franklin Institute Press.

Henahan, D. (1986, July 20). Pondering the link between genius and madness. *New York Times*, section 2, p. 21.

Jamison, K.R. (1989). Mood disorders and patterns of creativity in British writers and artists. *Psychiatry, 52*, 125–134.

Jamison, K.R., Gerner, R.H., Hammen, C., & Padesky, C. (1980). Clouds and silver linings: Positive experiences associated with primary affective disorders. *American Journal of Psychiatry, 137*, 198–202.

Kessel, N. (1989). Genius and mental disorder: A history of ideas concerning their conjunction. In P. Murray (Ed.), *Genius: The history of an idea* (pp. 196–212). London: Blackwell.

Kraepelin, E. (1921). *Manic-depressive insanity and paranoia*. London: Churchill Livingstone.

May, R. (1975). *The courage to create*. New York: Norton.

Richards, R., & Kinney, D.K. (1990). Mood swings and creativity. *Creativity Research Journal, 3*, 202–217.

Richards, R.L. (1981). Relationships between creativity and psychopathology: An evaluation and interpretation of the evidence. *Genetic Psychology Monographs, 103*, 261–324.

Rogers, C.R. (1959). Towards a theory of creativity. In H.H. Anderson (Ed.), *Creativity and its cultivation* (pp. 69–82). New York: Harper. (Original work published 1954)

Schwann guide. (1990). Vol. 42(1). Chatsworth, CA: ABC Consumer Magazines.

Simonton, D.K. (1984). *Genius, creativity and leadership: Historiometric inquiries*. Cambridge, MA: Harvard.

Slater, E., & Meyer, A. (1959). Contributions to a pathography of the musicians: 1. Robert Schumann. *Confinia Psychiatrica, 2*, 65–94.

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