

Creativity and Psychopathology – An Interdisciplinary View

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Keywords: Creativity, psychopathology, mental disorders, bipolar disorders, depression, schizophrenia, emotional instability, cognitive incoherence, order and chaos, psychotherapy

Abstract

Since ancient philosophy extraordinary creativity is associated with mental disorders, emotional and cognitive destabilization, and melancholia. We here summarize the results of empirical and narrative studies and analyze the most prominent case of a highly creative person who suffered from dysthymia and major depression with suicidality. Hereby, we focus on the interaction of different phases of the creative process with “bipolar” personality traits. Finally, we offer an interdisciplinary interpretation of the creative dialectics between order and chaos. The results show that severe psychopathology inhibits creativity. Mild and moderate disorders can inspire and motivate creative work but are only leading to new and useful solutions when creators succeed in transforming their emotional instability and cognitive incoherence into stable and coherent forms. The cultural idea that creativity emerges in dialectical processes between order and chaos, is also to be found in the psychologic interplay of coherence and incoherence, and in neuro-scientific models of the dynamics between tightening and loosening of neuronal structures. Consequences are drawn for the psychotherapeutic treatment of persons striving for creativity.

Introduction

Creativity, the ability to produce something novel and useful that is a valuable contribution to a specific domain [1, 2], is often associated with psychopathology [3]. Parnas, Sandsten, Vestergaard and Nordgaard assume an inverted U-curve and suppose that low levels of psychopathology are associated with creativity [4]. However, the application of statistical models to complex phenomena like creativity is very limited [5]. Thus, we integrate empirical-statistical findings with narrative and phenomenological studies [6] and use narrative methods to investigate whether a certain amount of psychopathology may be necessary or at least favourable for extraordinarily creative achievements, as considered by greater parts of the society and science [7-9]. The myth of a positive relationship of genius and madness reaches so far that especially in Pop-culture – e. g. Jim Morrison and Amy Winehouse – several artists believe that drug-induced emotional and cognitive incoherence can lead to creative achievements [10]. This idea might have even spread in the perception of the public.

The relationship between creativity and psychopathology is deeply rooted in cultural memory [11]. The first individual author of Western culture, Hesiod, characterizes around 500 b. c. the god Kronos (in Latin: Saturnus) as an incarnation of creativity and melancholic aggressivity [12]. Theophrast (371-287) asks the famous question which is mostly ascribed to his teacher Aristotle (384-322): “Why is it that all those who have become eminent in philosophy, politics, poetry or the arts are clearly melancholic, and some of them to such an extent as to be

affected by diseases caused by black bile?” [13]. Akiskal and Akiskal examined whether the concept of eminent creativity of the ancient Greeks applies to depressive and bipolar disorders, concluding that a diluted temperamental form of bipolarity, but not bipolar disorder *sensu strictu*, is associated with creativity [14]. This opinion complies with the conception of Aristotle and Theophrast, respectively, when the latter states: „Those who excel in the arts may be blessed by ... a humoral... effect... not too hot ... not too cold, but just right (eukraton)“ [13]. In this respect, Andreasen and Canter stated that individuals with bipolar temperament and heightened creativity are “healthier” than the average person [15]. This idea had already been elaborated in the Renaissance, most prominently by the physician and philosopher Marsilio Ficino (1433-1499).

In the European aesthetics of genius of the later 18th and beginning 19th century, the relationship between creativity, melancholia and madness was profoundly elaborated. Most explicitly the statesman, scientist and poet J. W. v. Goethe (1749-1832) showed that creative efforts can be motivated and inspired by anxieties, depressive mood, adjustment disorders and personality problems [16]. However, these motivations become only productive when the sufferer is able to transform his troubles into an artistic form and/or practical activity. Shakespeare, who deeply influenced Goethe, had put this into the following verses:

”Lovers and madmen have such seething brains,/ such shaping fantasies, that apprehend/ More than cool reason ever comprehends. ... And as imagination bodies forth/ The forms of things unknown, the poet’s pen/ turns them to shapes, and gives to airy nothing/ a local habitation and a name.” (A midsummer night’s dream, Act V, I, vs. 5-18).

The creative transformation of chaos in the sense of emotional turmoil and cognitive incoherence into coherent forms by poetry and philosophy was also essential for Nietzsche until progressive paralysis destroyed his creative capacities. He expressed his personal experiences with the dialectics between order and chaos, coherence and incoherence poetically: “One must still have some chaos in oneself to be able to give birth to a dancing star” [17]. Nietzsche believed like many classical authors before him that the creative transformation of emotional and cognitive chaos leads to “enhanced healthiness”. This convenes with modern humanistic [18, 19], existential [20], and psychoanalytical theories [21] which suppose that creativity is not a result of mental disorders, but the manifestation of health promoting self-realization. The aim of this article is to summarize and present knowledge on the relationship of creativity and psychopathology and to draw conclusions for the treatment of individuals who fall into crises while striving for creativity.

Methods

At first, we offer an overview of empirical-statistical studies on creativity and psychopathology. Since these studies are limited especially in respect to extraordinary creativity [2, 5], we here reflect the results of empirical studies phenomenologically on the basis of biographical studies. Inspired by person-centered psychiatry [22] we complete empirical studies with ideographic analyses, especially of the best documented case of an eminent creator who suffered from dysthymia, major depression and suicidality, namely J.W. v. Goethe. Finally, we give an interdisciplinary interpretation of the creative dialectics between order and chaos, structure and dynamics, stability and instability, drawing conclusions for psychotherapeutic assistance

and treatment.

Results

We here summarize the results of empirical, narrative-phenomenological and idiographic studies.

Empirical studies on creativity and psychopathology

Thys, Sabbe and DeHert published a systematic review of experimental studies on creativity and psychopathology since 1950 [23]. Although the psychometric and psychodiagnostic assessments in the selected studies were careful, the differences between disorders and extreme expressions of personality traits, e.g. the 'Big Five' [24], remained unclear. More importantly the instruments to measure creativity were not properly validated. Additionally, it seemed impossible to investigate whether the studied individuals were in creative phases at the time of the tests. Retrospective studies, most importantly by Jamison, showed that poets suffer more frequently from affective disorders and suicides than the average but she also showed that severe manic-depressive disorders seem less common in creative people than in the general population [25]. Ludwig found that the mental stability of eminent creative people is in part dependent on the domain they work in and showed that eminent creative scientists, social activists, economists, and essay writers suffer less from mental disturbances when compared with the general population [9]. In contrast, poetic writers suffer from depressive episodes three times more often and commit suicide three times more often than the general population. Other studies showed increased prevalence rates for severe depression, alcohol addiction and suicide in writers compared to the general population; outstanding scientists, on the other hand, were psychopathologically relatively inconspicuous [26, 27]. Other researchers suppose a positive correlation between attenuated mild forms of the bipolar spectrum disorders and outstanding creative achievements [13, 28].

Outstanding creative achievement has often been associated with a psychosis proneness [29], but the use of the term psychosis remains unclear. Some authors refer to schizophrenia and schizotypy as conditions which inhibit creativity [23], while other authors refer to non-clinical psychoticism and/or unspecifically defined "mild" forms of schizophrenia which should reinforce creativity [30]. Severe mental disorders like chronic schizophrenia and dementia generally impair or even destroy creativity [31].

The data of the most extensive longitudinal studies inaugurated by Terman [32] speak against a close connection between genius and madness, creativity and psychopathology [33]. The studies suggest that highly gifted individuals are physically and psychologically above average. In a comparison of the most successful and least successful subjects in the course of the longitudinal study of his initial sample of 857 boys and 671 girls from his Genetic Studies of Genius (average IQ of 151), Terman [32] found that successful subjects were more willing to work persistently and perseveringly, had a higher level of self-confidence, were more sociable, had greater stamina and more common sense; their mood was more balanced and less impulsive; at the same time highly gifted subjects are less willing to adapt than less successful ones [34]. Cox, a doctoral student of Terman, used a historiometric analysis to examine biographical data on 301 geniuses who had lived between 1450 and 1850 [35]. Most of them were highly intelligent and displayed great strength of character [36], they were extremely persistent in pursuing their self-imposed goals, and they did not allow themselves to be dis-

tracted by criticism. In the extensive biographical studies of Juda [37], autobiographical data and medical records of 294 recognized geniuses (113 artists and 181 scientists and statesmen) and their relatives from German-speaking countries from 1650 onwards were examined. Juda concludes that there is no evidence to support the assumption that creativity correlates with psychic abnormalities. Rothenberg [38] sees only a superficial similarity between creative and pathological thought processes. While creative thinking is active, deliberate, oriented towards reality and with a clear goal reference (e.g. writing a novel), pathological and especially psychotic thinking determined no creative behavior. Coercive thoughts, delusions, panic attacks, depressions and personality disorders showed - like creative thinking - a deviation from the normal, but in a stereotypical, often banal and for the creative process unhelpful way [39]. For both outstanding and everyday creativity, Rothenberg [39] therefore concludes that creativity is a crucial form of psychological adaptation. Verhaeghen, Joorman and Khan [40] showed that the connection between depression and creative behavior is not caused by depressive symptomatology such as anhedonia and negative mood, but by a third variable: self-reflexive rumination. Shapiro and Weisberg [41] found no evidence that current depressive symptoms in persons predisposed to bipolar disorders are positively related to creativity.

The research on anxiety and creativity is sparse; there are only a few experimental studies [42], which may be due to the fact that anxiety and fear are regarded as not conducive to creativity. Lazarus [43] showed that people who are highly worried have less confidence in solving problems and less often use problem-oriented coping. A low level of problem-solving confidence and less active problem-orientated coping strategies are associated with mental disorders [44], whereas rational, conscious, targeted and creative coping strategies seem to be conducive to mental health [45]. In an own study ([46], we examined the hypothesis that moderate and severe depression inhibits creativity. The naturalistic field study showed that the more depressive symptoms were pronounced, the more creative reasoning was impaired. Divergent thinking was less affected by depression than convergent thinking, goal-oriented evaluation and implementation of ideas. The severity of symptoms in general correlated with the reduction of creative activities in everyday life. In accordance with Csikszentmihalyi [1] and Runco [2, 47], Hofmann concluded that slight forms of mental disorders (e.g. mild depressive or hypomanic states) are compatible with creative work, as long as the person has sufficient cognitive capacities, affective energies and supportive environments [46]. This is compatible with the concept of cyclothymic and hyperthymic temperament which both are considered conducive to creativity in contrary to severe bipolar disorder [13]. To understand the complex interaction of emotional and cognitive “bipolarity” with individual creative activity empirical-statistical studies need to be complemented by narrative-biographical and phenomenological studies.

Narrative-biographical and phenomenological studies

As mentioned above, neuroscientific and empirical-statistical studies on extraordinary creativity are very limited [5] and the uniqueness of geniuses should best be explored by narrative psycho-biographical and phenomenological studies [48]. This kind of in-depths studies can bring along a socio-culturally embedded understanding of the person and his/her creative acts [49]. In the 20th century prominent psychiatrists like Eugen Bleuler [50], Karl Jaspers [51] and Wilhelm Lange-Eichbaum [52] studied ideographically creative activities of mentally ill

persons and concluded that severe psychopathology, especially schizophrenia, inhibits and even destroys creativity. Further, they showed that creative work can be helpful to cope with mental disorders. At the time when Bleuler coined the term “schizophrenia”, Freud began to investigate the originality of the delusions in the famous case of Schreber [53]. His studies of extraordinary creators like Leonardo da Vinci, Michelangelo, Moses and Goethe [16], became influential. He came to the conclusion that psychoanalysis can discover psychological motives for being creative but not creative activity in itself [54]. The latter is an expression of vital energy and undisturbed mental functions which can help to overcome emotional and cognitive disorder [55]. Other biographical studies [26, 27, 56] supported the assumption of a positive relation of creativity and mental disorders, particularly affective disorders. The problem of the quoted studies is that they don’t show at which time in their lives creative persons were active. In-depth psycho-biographical research could give a more complex vision of the interaction of the five dimension of creativity – talent, skills, motivation, personality traits, supportive environments – with mental illness.

The case of Robert Schumann shows exemplarily that the musician was highly productive in phases of well-being, even when the content of his works was deeply melancholic like in the famous “Poet’s Love“ of 1840. But there were no hints to a hypomanic phase, the artist was simply happy with his wife Clara and had one of the most productive years in his life. Mild mood swings and “bipolar personality traits” (see below) interacted constructively with his creative striving until psycho-social traumata complicated by heavy drinking caused a breakdown. After a parasuicidal act Robert Schuman was hospitalized since the age of 44 until his death two years later. Probably due to the beginning of the progressive paralysis and the social isolation in the hospital his creative activity dried up. With this short example (for more details see [57]) we try to demonstrate that without understanding the complex interaction of the different psychopathological traits and states with different aspects of creative personalities the relationship between psychopathology and creativity remains superficial. As in person-centered psychiatry [22], the whole interaction of bio-psycho-social factors has to be taken into account.

Thus, Ponterotto, explored Bobby Fisher’s genius and the complex interaction of his aspirations with mistrust, anger, hatred and social isolation [58]. Bond analyzed the mental problems of Virginia Wolf and the dynamics involved in her suicide in respect to her complex psycho-social situation [59]. Monroe [60] has further described in his work the lives of extraordinary individuals, such as Mary Lamb, van Gogh or Edward Munch and their psychotic episodes, as well as their self-descriptions about their inner worlds and the interconnectedness with their creative acts. Atwood explored the life and creativity in Johann Sebastian Bach, highlighting that Bach’s creativity served him to stay mentally healthy and sane, and to stabilize his emotional and cognitive coherence [61]. There are many reports on the healing power of creativity that show the significance of proper psychiatric and psychotherapeutic treatment to become active again [2, 25].

Detailed narrative reports of psychotherapeutic treatments show how different therapeutic methods reinforce creative solutions and serve to reduce psychopathologic symptoms [62]. With respect to the relationship of alcohol- and drug-abuse, idealized since antiquity, we here can only summarize that addiction frequently leads to psycho-social disintegration and destruction of creativity [2, 63]. A detailed analysis of the Pop-Icon Jim Morrison demonstrates exemplarily how the use of alcohol and drugs interacts with mood swings, psycho-social con-

flicts and creative striving [64]. It is shown that sometimes ideas become more fluent under the influence of mild alcohol and drug intoxication. However, the capacity to elaborate complex creative tasks is mostly reduced. Many case reports and popular medialization shows that severe alcohol- and drug-abuse over a longer period of time destroys creativity (see e.g. the documentary about Amy Winehouse [65]). Further on, also in pop-music, creativity serves to overcome emotional instability, cognitive incoherence, psycho-social conflicts. This can be seen exemplarily in the life and work of Madonna Ciccone and Mick Jagger [66].

Ideographic analysis: J. W. v. Goethe

The ideographic analysis of the life and work of the politician, scientist and poet J. W. v. Goethe is of particular interest for the exploration of the relationship of creativity and psychopathology, because he is probably the best documented case of the relationship between eminent creativity, bipolarity and depression. Goethe had a unique ability to describe his striving for creativity and his emotional sufferings and cognitive confusions. His letters, diaries, and recorded conversations are rich with descriptions of dysthymia and depressive episodes. Nearly 50 volumes of the famous Weimar-Edition of his works are autobiographical in nature. In these volumes, he portrays a variety of mental disorders, in part reflecting his own sufferings which he embodies in descriptions in his works on Werther, Faust, Torquato Tasso and Wilhelm Meister aspects. He thereby mainly describes his emotional turmoil, anxiety, depression and suicidality, frequently confessing that these figures are “flesh from my flesh and bone from my bone” [67]. Not just Goethe himself, but also those around him – mother, father, and sister, and later friends, lovers, and colleagues – also provided detailed accounts of his personal development. This was made possible by the *Zeitgeist* in the *Time of Sensitivity* which provided detailed descriptions of impressions, feelings and ideas which had not been practiced before or ever since [68].

Being inspired by Greek, Roman, Italian, English, Persian, Indian and Chinese authors, the Bible and a unique variety of cultural memory, Goethe’s striving to create “World-Literature” was an intention to discover universal human truths. This applies also to mental disorders. Since his early childhood, Goethe was occupied with mental disorders, e.g. with Clauer, a young man who suffered most probably from a schizophrenic spectrum disorder. Clauer lived in Goethe’s family home and the young Goethe wrote reports on his mental states. Goethe became a supportive listener to the emotional problems also of his friends. Thus, he was called the “understanding one” [68]. Later, Goethe cared many years for the hermit Plessing, who seemed to suffer from what we classify as schizophrenia. Anxiety and depression were a frequent preoccupation for Goethe himself. Today his mental disorders would be diagnosed as dysthymia complicated by about six moderate or severe depressive episodes [67]. In times when psychotherapeutic treatments were widely spread among intellectuals, Goethe developed relational, cognitive behavioral, psychodynamic and existential methods to overcome his mood disorders and cognitive imbalance [69]. He described general principles and specific methods of psychotherapy which are comparable with modern common factor and modular approaches [70].

In respect to creativity, Goethe often talked about “polarity” and in fact he was exemplary in the way how seemingly opposite personality traits were [neatly] intertwined: The productive balance of emotional stability vs. instability, extraversion vs. introversion, openness vs. withdrawal, agreeableness vs. antagonism, constraint vs. disinhibition [71]. These polarities were -

besides talent, skills, discipline and supportive environments - the fundament of Goethe's creativity. Further, he could overcome relational problems, anxieties, dysthymic moods, depressive episodes and mental incoherence e.g. by creative writings, such as "The sufferings of the young man Werther". Werther suicided himself, whereas Goethe felt to have escaped "the claws of death". 50 years after this suffering, he fell into a similar despair like in the life period before of writing "Werther" and composed the poem "To Werther" – and for himself: "I was chosen as one to remain; you, as one chosen to depart, left to before me—and didn't lose much. ... Entangled in such torments, half to blame, may a god give him the power to express what he endures" [16].

Analyzing the interaction between mood swings and mental problems with creativity, Goethe exemplarily shows how psychologic distress is related to different phases of the creative process. E. g. in the preparation and incubation phases of his novel "Werther" he felt sad, instable, withdrawn, antagonistic and constrained. After 1,5 years of reading, learning, rumination and self-reflection he could enter the creative phases of illumination and productive realization. In these phases he described himself, and was described by others, as stable and instable, extraverted and introverted, open and withdrawn, agreeable and antagonistic, constraint and disinhibited at the same time. In the productive phase his mood may be classified as hypomanic but this doesn't cover the complexity of his mood swings in relation to creative work. In the verification phase, when he demonstrated or enacted his achievements, he became stable, extraverted, open and agreeable in a less ambivalent way. Goethe himself felt his creative striving inspired by the "polarity" of light and dark, order and chaos, exuberance and despondency. In states where he could not immerse in creative polarity he felt depressed and in these phases he could not work creatively [16].

The complex interaction between emotional instability with seemingly contradictory personality traits dependent on the phases of the creative process can also be found in modern creators like Albert Einstein and Bill Gates [72].

Conclusions

An interdisciplinary interpretation of empirical-statistical findings and phenomenological and narrative studies shows that the psychological interplay between coherence and incoherence, emotional stability and instability which characterizes the creative process resembles the dialectics of order and chaos, described by cultural studies [12, 73]. In neuroscience similar concepts are to be found e. g. in the characterization of the creative process as an interplay of tightening and loosening of neuronal networks that leads to new and coherent connections [74, 75]. The five factors of personality structure interact dialectically in the different phases of the creative process. It is highly important for the treatment of creative individuals to know in which phases of the creative process - preparation, incubation, illumination, realization, verification – different aspects of personality traits come into play. Biographical studies show that emotional stability vs. instability, extraversion vs. introversion, unconventionality vs. conventionality, agreeableness vs. antagonism, disinhibition vs. constraint are intertwined dialectically. They can be activated simultaneously or in different phases of the creative process. The interplay between convergently focusing and divergently associative thinking - that can give rise to new and usable ideas - is a dialectical synthesis of sometimes contradictory mental processes [2]. The complexity of "creative bipolarity" [57] should be respected in any psychological treatment. The dialectics of coherence and incoherence leading to new and usa-

ble forms may serve as an epistemological construct to bridge the gaps between neurobiology, psychology and cultural studies [76]. In respect to the relation of creativity and psychopathology, the interdisciplinary approach shows that mental disorders, emotional instability and cognitive incoherence can motivate creative efforts to overcome states of crises or even illness. However, if expressed severely, mental disorders like severe depression, schizophrenia, or alcohol- and drug addiction, inhibit or even destroy creativity. Generally, ordinary and eminent creators suffering from mental disorders may be creative not because, but in spite of having (severe) mental disorders. It depends on the degree of instability and incoherence and the power of creative coping strategies.

Creativity in itself can be an important (self-)therapeutic module to cope with emotional and cognitive distress, relational problems and mental disorders. In respect to psychotherapeutic and psychopharmacologic treatment, it is important to recognize that a certain “creative bipolarity” is inherent in many creative personalities and creative processes. This is valid for the interplay of convergent and divergent thinking, focused work and associative fantasizing, discipline and relaxation, stress and flow, and seemingly contradictory personality traits as well as demanding and supportive environments. A dialectical concept of creativity that respects neurobiological, psychological and cultural studies should help psychotherapists and psychiatrists to assist patients in their creative striving.

References

1. Csikszentmihalyi M. *Creativity : Flow and the psychology of discovery and invention*. New York: Harper Perennial; 1996.
2. Runco MA. *Creativity: Theories and themes: Research, development, and practice*, 2nd ed. San Diego, CA: Elsevier Academic Press; 2014.
3. Kaufmann G, Kaufmann A. When good is bad and bad is good: Mood, bipolarity, and creativity. In: Kaufman JC, Hrsg. *Creativity and mental illness*. New York, NY: Cambridge University Press; 2014: 205-235.
4. Parnas J, Sandsten KE, Vestergaard CH et al. Mental illness among relatives of successful academics: Implications for psychopathology- creativity research. *World Psychiatry* 2019; 18: 362-363.
5. Andreasen NC. *The creating brain: The neuroscience of genius*. Washington, DC: Dana Press; 2005.
6. Fuchs T. *Ecology of the brain : the phenomenology and biology of the embodied mind*. Oxford: Oxford University Press; 2018.
7. Knudsen KS, Bookheimer SY, Bilder RM. Is psychopathology elevated in Big-C visual artists and scientists? *Journal of Abnormal Psychology* 2019; 128: 273-283.
8. Ludwig AM. Creative achievement and psychopathology: Comparison among professions. *American Journal of Psychotherapy* 1992; 46: 330-356.
9. Ludwig AM. Creative achievement and psychopathology. In: Runco MA, Richards R, Hrsg. *Eminent creativity, everyday creativity, and health*. Greenwich: Ablex; 1997: 33-64.
10. Hopkins J, Sugarman DA. *No one here gets out alive*. New York: Warner; 1980.
11. Becker G. The association of creativity and psychopathology: Its cultural-historical origins. *Creativity Research Journal* 2001; 13: 45-53.
12. Klibansky R, Panofsky E, Saxl F. *Saturn and melancholy*. [London]: Nelson; 1964

13. Akiskal HS, Akiskal KK. In search of Aristotle: Temperament, human nature, melancholia, creativity and eminence. *Journal of Affective Disorders* 2007; 100: 1-6.
14. Akiskal HS, Akiskal K. Reassessing the prevalence of bipolar disorders: Clinical significance and artistic creativity. *Psychiatry & Psychobiology* 1988; 3: 29-36.
15. Andreasen NJC, Canter A. The creative writer: Psychiatric symptoms and family history. *Comprehensive Psychiatry* 1974; 15: 123-131.
16. Holm-Hadulla RM. Goethe's path to creativity: a psycho-biography of the eminent politician, scientist and poet. London: Routledge 2019.
17. Nietzsche F. Also sprach Zarathustra: Ein Buch für Alle und Keinen. Chemnitz: Verlag Ernst Schmeitzner; 1883.
18. Maslow AH. Creativity in self-actualizing people. In *Toward a psychology of being*. Princeton, NJ: D Van Nostrand; 1962: 127-137.
19. Rogers CR. *Client centered therapy : its current practice, implications and theory*. London: Constable; 1976.
20. Yalom, I. *Existential Psychotherapy*. New York: Basic Books 2010.
21. Winnicott DW. *Playing and reality*. New York, NY: Routledge; 2005.
22. Mezzich JE, Botbol M, Christodoulou GN et al. *Person centered psychiatry*. Cham: Springer International Publishing; 2016.
23. Thys E, Sabbe B, De Hert M. Creativity and psychopathology: A systematic review. *Psychopathology* 2014; 47: 141-147.
24. Widiger TA, Crego C. The bipolarity of normal and abnormal personality structure: Implications for assessment. *Psychological Assessment* 2019; 31: 420-431.
25. Jamison KR. *Touched with fire: Manic-depressive illness and the artistic temperament*. New York, NY: Free Press; 1993.
26. Andreasen NC. Creativity and mental illness: Prevalence rates in writers and their first-degree relatives. *The American Journal of Psychiatry* 1987; 144: 1288-1292.
27. Post F. Creativity and psychopathology: A study of 291 world-famous men. *The British Journal of Psychiatry* 1994; 165: 22-34.
28. Santosa CM, Strong CM, Nowakowska C et al. Enhanced creativity in bipolar disorder patients: A controlled study. *Journal of Affective Disorders* 2007; 100: 31-39.
29. Carson SH, Peterson JB, Higgins DM. Decreased Latent Inhibition Is Associated With Increased Creative Achievement in High-Functioning Individuals. *Journal of Personality and Social Psychology* 2003; 85: 499-506.
30. Eysenck H-J. Creativity and personality: An attempt to bridge divergent traditions. *Psychological Inquiry* 1993; 4: 238-246.
31. Kuks JBM, Snoek JW. *Textbook of clinical neurology*; 2018.
32. Terman LM. *Genetic studies of genius Mental and physical traits of a thousand gifted children*. Palo Alto, CA: Stanford Univ. Press; 1925.
33. Cravens H. A scientific project locked in time: The Terman Genetic Studies of Genius, 1920s–1950s. *American Psychologist* 1992; 47: 183-189.
34. Eysenck HJ. *Intelligence : a new look*. New Brunswick, N.J.; London: Transaction; 1998.
35. Cox CM. The early mental traits of 300 geniuses. In: Albert RS, Hrsg. *Genius and eminence*, 2nd ed. Elmsford, NY: Pergamon Press; 1992: 53-58.

36. Simonton DK, Song AV. Eminence, IQ, physical and mental health, and achievement domain: Cox's 282 geniuses revisited. *Psychological Science* 2009; 20: 429-434.
37. Juda A. The relationship between highest mental capacity and psychic abnormalities. *The American Journal of Psychiatry* 1949; 106: 296-307.
38. Rothenberg A. *Creativity and madness: New findings and old stereotypes*. Baltimore, MD: Johns Hopkins University Press; 1990.
39. Rothenberg A. Creativity—the healthy muse. *The Lancet* 2006; 368: 8-9.
40. Verhaeghen P, Joorman J, Khan R. Why We Sing the Blues: The Relation Between Self-Reflective Rumination, Mood, and Creativity. *Emotion* 2005; 5: 226-232.
41. Shapiro PJ, Weisberg RW. Creativity and bipolar diathesis: Common behavioural and cognitive components. *Cognition and Emotion* 1999; 13: 741-762.
42. Carlsson I. Anxiety and flexibility of defense related to high or low creativity. *Creativity Research Journal* 2002; 14: 341-349.
43. Lazarus RS. *Emotion and adaptation*. New York: Oxford Univ. Press; 1991.
44. D'Zurilla T, Chang EC. The relations between social problem solving and coping. *Cognitive Therapy and Research* 1995; 19: 547-562.
45. Heppner PP, Cook SW, Wright DM et al. Progress in resolving problems: A problem-focused style of coping. *Journal of Counseling Psychology* 1995; 42: 279-293.
46. Hofmann F-H. *Kreativität und Krise: Zum Zusammenhang von psychischer Beeinträchtigung und Kreativität: Heidelberg, Univ., Diss., 2010; 2010: Online-Ressource*
47. Runco MA. Creativity. *Annual Review of Psychology* 2004; 55: 657-687.
48. Nortjé N, Fouché P, Gogo O. The neo-Adlerian holistic wellness of Brenda Fassie: A psychobiography. *Online Journal of African Affairs* 2013; 2: 46-53
49. Mayer C-H. *The life and creative works of Paulo Coelho: A psychobiography from a Positive Psychology perspective*. Cham, Switzerland: Springer; 2017
50. Bleuler E. *Dementia praecox or the group of schizophrenias*. New York: International Universities Press; 1952.
51. Jaspers K. *General psychopathology*. Manchester: Manchester University Press; 1963.
52. Lange-Eichbaum W. *The Problem of Genius*. London: Kegan Paul & Co.; 1931.
53. Freud S. *The case of Schreber*. London: Hogarth; 1958.
54. Freud S. *Creative writers and day-dreaming*. London: Hogarth; 1908.
55. Freud S. *Beyond the pleasure principle*. London: Hogarth; 1920.
56. Post F. Verbal creativity, depression and alcoholism: An investigation of one hundred American and British writers. *The British Journal of Psychiatry* 1996; 168: 545-555.
57. Holm-Hadulla R, Koutsoukou-Argyraki A. Bipolar disorder and/or creative bipolarity: Robert Schumann's exemplary psychopathology—combining symptomatological and psychosocial perspectives with creativity research. *Psychopathology* 2018; 50: 379-388.
58. Ponterotto J, G. Case Study in psychobiographical ethics: Bobby Fischer, World Chess Champion. *Journal of Empirical Research on Human Research Ethics* 2013; 8: 19-27
59. Bond AH. *Who killed Virginia Woolf?: A psychobiography*. New York, NY: Human Sciences Press; 1989

60. Monroe RR. Creative brainstorms: The relationship between madness and genius. New York: Irvington; 1992
61. Atwood GE. Time, death, eternity: Imagining the soul of Johann Sebastian Bach. In: Mayer C-H, Kovary Z, Hrsg. New trends in psychobiography. Switzerland: Springer; 2019: 299-323
62. Holm-Hadulla RM. The recovered voice: Tales of practical psychotherapy. London: Routledge; 2017
63. Rothenberg A. Creativity: Mental health, and alcoholism. In: Runco M, Richards R, Hrsg. Eminent creativity, everyday creativity, and health. Greenwich, Conn.: Ablex Pub. Corp; 1997: 65-96
64. Holm-Hadulla R, Bertolino A. Creativity, alcohol and drug abuse: The pop icon Jim Morrison. *Psychopathology* 2014; 47: 167-173.
65. Kapadia A, Winehouse A, Ronson M et al. Amy: The girl behind the name. In. Moore Park, NSW: Entertainment One Films Australia Twentieth Century Fox Home Entertainment South Pacific; 2015
66. Holm-Hadulla R. Sympathy for the devil - The creative transformation of the evil. *Journal of Genius and Eminence* 2019; 5: 01-11.
67. Holm-Hadulla R, Roussel M, Hofmann F-H. Depression and creativity—The case of the German poet, scientist and statesman J W v Goethe. *Journal of Affective Disorders* 2010; 127: 43-49.
68. Boyle N. Goethe: The poet and the age Vol. 1, Vol. 1. Oxford: Clarendon Press; 1991
69. Holm-Hadulla R. Goethe's anxieties, depressive episodes and (self-)therapeutic strategies: A contribution to method integration in psychotherapy. *Psychopathology* 2013; 46: 266-274.
70. Fonagy P, Luyten P. Fidelity vs flexibility in the implementation of psychotherapies: Time to move on. *World Psychiatry* 2019; 18: 270-271.
71. Widiger TA, Crego C. The five factor model of personality structure: An update. *World Psychiatry* 2019; 18: 271-272.
72. Holm-Hadulla RM. Kreativität : Konzept und Lebensstil. Göttingen: Vandenhoeck & Ruprecht; 2010
73. Holm-Hadulla RM, Wendt AN. Dialectical thinking: Further implications for creativity. In: Pritzker S, Runco M, Hrsg. *Encyclopedia of Creativity (Third Edition)*. Oxford: Academic Press; 2020: 332-338.
74. Kandel ER. The age of insight : the quest to understand the unconscious in art, mind, and brain. New York, NY: Random House; 2012
75. Kelso JAS. Dynamic patterns: The self-organization of brain and behavior. Cambridge, MA: The MIT Press; 1995
76. Holm-Hadulla R. The dialectic of creativity: A synthesis of neurobiological, psychological, cultural and practical aspects of the creative process. *Creativity Research Journal* 2013; 25: 293-299.