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Abstract

The relationship between creativity and impairment in quality of life due to psychological disorder has an unclear relationship. Some studies indicate creativity and psychopathology have a significant relationship (Andreasen, 1987) while other studies indicate the two having no connection at all (Karlsson, 1970). The current study examined (1) what direct correlations exist between creative achievement and quality of life impairment, psychological inflexibility and quality of life impairment, and symptoms of psychoticism and quality of life impairment, and (2) how the indirect relationship between creative achievement and quality of life impairment in the context of symptoms of psychoticism changes at varying levels of psychological inflexibility. Data collected from Murray State University revealed significant positive correlations between creative achievement and quality of life impairment, psychological inflexibility and quality of life impairment, and symptoms of psychoticism and quality of life impairment. Furthermore, the data revealed that the indirect relationship between creative achievement and quality of life impairment in the context of symptoms of psychoticism was affected by psychological inflexibility when medium to high scores of psychological inflexibility were present. Limitations of the current study and future research are discussed.

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Chapter I: Review of the Literature

Events throughout history have lent support that creativity comes at the price of mental suffering. Vincent Van Gogh sacrificed his ear (Runyan, 1981), and later his life in 1890 (Maire, 1971), in return for *Starry Night* and *Café Terrace at Night* (Van Gogh, 1888, 1889). Italian actor Raphael Schumacher died on stage in early 2016 during a scripted depiction of a suicide via hanging in a monologue from *Spring Awakening*. Due to Schumacher's known depression at the time of his death and the lack of malfunction of the stage equipment, it still is not known whether or not this death was an accident or a suicide (Hooton, 2016). As a result, creativity and various mental difficulties have been the focus of various researchers for the past century.

The focus on the bond between creativity and mental distress began with philosophers and thinkers. Plato considered mental illness to be a symptom of "divine" inspiration, as written in *Phaedrus*, "Madness, provided it comes as the gift of heaven, is the channel by which we receive the greatest blessings" (Plato, BC). However, this link was only identified in passing statements by notable individuals, with no examples to demonstrate the link. In the late 19th century, Lombroso (1896) published one of the first notable works connecting forms of creativity and mental illness. In his book, "The Man of Genius," he presents examples of scholars and artists over the years who, while considered brilliant in their times, also were victim to severe mental illness. Some of these include Charles Baudelaire, famous French poet who suffered from hallucinations, and August Comte, founder of positivism, who suffered from delusions such as a mission

from God to abolish all priests. While this may seem to indicate that there is a strong correlation between creativity and psychopathology, using high profile subjects as an entire subject base is not necessarily representative of the general population. Lord Byron, who was thought to suffer from Bipolar disorder (Hankir, 2011) said, “We of the craft are all crazy. Some are affected by gaiety, others by melancholy, but all are more or less touched.” (Lovell, 1969, p. 155). Thus, it may not be likely that these results are indicative of a pattern in the general population. In addition, Lombroso’s often-cited work includes physical characteristics that Lombroso reported “all” creatives having, which have since been thoroughly debunked.

Despite Lombroso’s work including some seemingly frivolous claims, it sparked additional research on a possible connection between creativity and mental distress. Data collection aimed toward discovering such a connection rose in popularity thanks to psychiatrists Arnold Ludwig and Nancy Andreasen and psychologist Kay Jamison. In 1987, Andreasen published a study comparing the mental health of members of the Iowa Writers’ Workshop with non-creative controls, these being people in law, administration, etc. The study indicated that the authors were more likely than age-matched controls to have affective disorders, particularly bipolar disorder, and have relatives with affective disorders (Andreasen, 1987). Soon after, Jamison interviewed 47 award-winning writers and artists about their mental health and psychiatric history. Jamison (1989) found that award-winning artists and writers were five times more likely than controls to have any mood disorder and six times more likely to be diagnosed with bipolar disorder. Similarly, a 1970 archival study compared the giftedness of Icelandic men who did and did not have history of mental illness (Karlsson, 1970). Men included in Iceland’s “who’s who” yearly

publication, were compared based upon whether or not they had relatives with schizophrenia. This study, unlike the previously mentioned studies, did not find a significant correlation between inclusion in Iceland's "Who's Who" and diagnosis of mental illness. However, it did indicate a significant link between inclusion in this publication and having a first or second degree relative with a diagnosis of schizophrenia.

Andreasen and Jamison paved the way for research of creativity and psychopathology. However, it should be noted that their studies contained significant flaws. Andreasen only included thirty writers, twenty-seven of these being middle-aged Caucasian men, used a non-standardized interview to conclude diagnoses, and did not use any standardized criteria to inform diagnoses. (Schlesinger, 2009). Similarly, Jamison's sample consisted of chiefly Caucasian males with a mean age of 50, used a self-produced interview, and used no standardized criteria to diagnosis mental illness (Schlesinger, 2009). Finally, Karlsson's study, like the former mentioned, collected an all-male sample. These three results, while presenting interesting findings, are not generalizable by any means.

More recent studies utilizing more dependable materials and more generalizable samples do not seem to demonstrate a significant correlation between creativity and mental illness. One study (Kyaga et al, 2012), gathered archival information regarding 1,875,142 Swedish citizens from three Swedish national registers: The National Patient Register, The Cause of Death Register, and the Multigeneration Register. All subjects either had an International Statistical Classification of Diseases and Related Health Problems (ICD) mental illness diagnosis or their death was declared a suicide by a coroner. This study found no direct correlation between depression or anxiety and

creative achievement, despite having such a large sample. However, bipolar disorder and schizophrenia were correlated with being a published author (Kyaga et al., 2012). This indicates that, in most cases, there are not enough symptoms of psychological disorder present in creative individual to meet criteria for psychological disorder. However, it also indicate that when there are enough symptoms present to meet criteria for psychological disorder in creative individuals, these symptoms are related to psychoticism and mood dysregulation. Additionally, in another study trying to determine if various symptoms of anxiety and depression could predict specific aspects of creativity (divergent thinking, creative self-concepts, everyday creative behaviors, and creative accomplishments), Silvia & Kimbrel (2010) found that no model accounted for more than 3% of the variance in any of these aspects of creative achievement. Most studies indicate creativity only correlates with sub-clinical distress or relation to a proband with a mental disorder. There is little evidence that creativity is correlated with diagnosable mental illness. This indicates that despite common assumptions, creative people are often no more than genetically adjacent to a person with a mental disorder. However, when studies indicate a higher presence of psychological disorder in creative individuals, these disorders are psychotic disorders and bipolar disorder (Kyaga et al., 2012).

If some studies indicate cognitive similarities between participants with psychological disorder and creative participants, why might there be disagreement in the literature concerning an overall correlation between creativity and mental illness? Some concerns include the diversity in measures used to measure creativity and the diversity in sample populations. For example, Carson, Peterson, & Higgins (2005), includes both scientific and artistic occupations as an indication of creative achievement, Jamison

(1989) and Andreasen (1987) use membership in an author or artist society. Karlsson (1970), furthermore, used inclusion in a nationwide publication of “Who’s Who?” This creates disagreement in who is considered creative, because there is no consensus on what level of creativity is required for inclusion in any of these groups. Notable to the current study, past research does not measure symptoms of mental disorder and impairment in quality of life separately. While symptoms of mental suffering and mental disorder often lead to impairment in quality of life, this may not always be the case. As a result, measuring both symptoms and impairment in quality of life as if they are one variable may overlook symptoms of mental disorder in creative subjects when impairment in quality of life is minimal.

Despite there being research regarding creativity as it relates to mental illness, there is no research regarding creativity as it relates to impairment in quality of life. There is research indicating correlations between mental illness and low quality of life scores. Spitzer et al. (1995) found that mood, anxiety, somatoform, and eating disorder as diagnosed using DSM-III-R criteria were strongly correlated with lower scores on the Medical Outcomes Study (MOS) Short Form General Health Survey, a measure of Health-Related quality of Life. Further, the study indicated that quality of life scores were inversely related to number of diagnosed mental disorders, indicating that the more mental disorders with which a participant was diagnosed, the lower quality of life the participant had. In short, there is little agreement upon the relationship between creativity and mental disorder and there are no studies indicating how creativity may be related to quality of life.

What Do Creativity and Psychopathology Share?

If individuals with mental disorder and individuals with high creative achievement are not one in the same, do they at least share common traits? Cognitive and personality researchers have attempted answer this question. Guilford (1967) attempted to identify cognitive traits that were unique to creative individuals and individuals with mental disorder. Using factor analysis, he identified that there were two common traits in creative individuals: convergent and divergent thinking. Convergent thinking can be defined as the ability to correctly answer questions with a single correct response. Divergent thinking can be defined as the ability to respond to a question that has multiple correct responses. Dykes and McGhie (1976) compared attentional strategies in intelligence-matched creative individuals, non-creative individuals, and schizophrenia patients. The three trials consisted of two object sorting tasks, and a dichotomous shadowing task. Both the creative subjects and those with schizophrenia displayed a wider range of attention to the task, meaning they attended to the task as a whole, while non-creative subjects narrowed their focus to one aspect at a time. However, creative subjects and schizophrenia patients displayed different utilization of the wide range of attention. Subjects with schizophrenia maintained wide attentional focus throughout the task, even if it became detrimental. Creative subjects, conversely, were flexible in their range of focus, changing from a wide focus, to a narrow scope mimicking that of the non-creative subjects, as needed to complete the tasks.

Given that studies have indicated similar cognitive patterns in creative achievers and those with mental disorder, it may follow that both groups may share similar potential for creative achievement (divergent thinking, allocation of attentional focus,

etc.) but an additional, unknown factor separates the groups when it comes to actual creative achievement. Some mental disorders which demonstrate direct links with creativity (schizophrenia and bipolar disorder) are, more often than not, life interrupting. Because of this, people who have affinities for creative work may be impeded by symptoms so severely as to prevent creative achievement.

Models of Mental Illness and Creativity

Regarding the difference between creative people and those with mental disorder, some models have been proposed to explain results where creativity and psychological disorder are not strongly correlated. The Shared Vulnerability Model, by Carson (2011), indicates that creative thought and mental illness may share genetic factors, particularly genetic factors that result in divergent thinking. However, creativity may also involve genetic factors that protect against mental illness. Carson (2011) suggests this model may explain several aspects of the link between creativity and psychopathology, including the increase in levels of creativity in first-degree relatives of people with severe disorders, and the increased risk for mental illness in creative people (Karlsson, 1970). The Shared Vulnerability Model can be considered a type of Balancing Selection. Balancing Selection, such as suggested by Huxley, Mayr, Osmond, and Hoffer (1964), assumes that the genes that may lead to expression of psychopathology may offer evolutionary advantages, but only when they are simultaneously expressed with other genes that offer protective factors against the negative effects of the genes that leave one susceptible to psychopathology. This argument was originally made to explain why schizophrenia was more prevalent in populations than could be explained by Genetic Mutation Theory of schizophrenia held at the time (Kyaga et al., 2012). However, no data is available to

identify what genes may be at work in this interaction, so this model may remain to be seen as theoretical fiction.

While there is still no evidence strengthening Carson's Shared Vulnerability model, it does follow the Inverted-U Model of creativity and psychopathology that appears to be supported by patterns seen in previously mentioned research. The Inverted-U model proposes people with no symptoms of mental disorder and people with a diagnosable mental disorder are both less likely to creatively achieve than people with sub clinical mental distress (Abraham, 2014). This model could explain: 1) The number of studies presenting a lack of significant correlations between diagnosable mental disorder and creativity, and 2) the studies presenting significant correlations between creativity and having first-degree relatives with a mental disorder. While this model may could reliably represent the relationship between creativity and mental disorder, the model still does not explain what factors may be at work to create the pattern indicated.

Psychological Flexibility as a Potential Moderator

The primary models of this relationship suggest that protective factors may be needed in creative individuals in order to avoid mental disorder. However, there is no indication of what the factors separating creative individuals from those with mental disorder could be. Psychological flexibility may be a missing protective factor.

Psychological flexibility can formally be defined as, "...contacting the present moment as a conscious human being, and, based on what that situation affords, acting in accordance with one's chosen values." (Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004, p. 5).

Psychological Flexibility has demonstrated utility both in treatment of mental disorder and as a functional tool in daily living. Increasing psychological flexibility has been

connected to influences in many aspects of life, including negative affect towards weight, and weight loss, in obese clients (Sairanen et al., 2017), and decrease in impact of chronic headaches on quality of life (Almarzooqi & Mccracken, 2017).

Acceptance and Commitment Therapy (ACT) is a type of cognitive behavioral therapy, which focuses on increasing psychological flexibility. The desired outcome of ACT-consistent treatment is not reduction of symptoms but increase in quality of life. ACT considers a reduction of symptoms to be a possible by-product of improved participation in one's own life, but symptom reduction is not the goal. One study regarding treatment of anxiety in highly anxious populations used ACT for treatment of participants (Berghoff, Forsyth, Ritzert, & Sheppard, 2014). The study determined that treatment had a significantly increased quality of life, but did not significantly affect symptom severity, indicating that decrease in symptoms experienced was not necessary to increase quality of life. Öst (2014) included sixty randomized control trials to determine to what degree ACT may be as efficacious as or more so than "gold standard" treatments for various mental disorders. The metaanalysis determined that ACT is as helpful as treatment as usual for many mental disorders, including depressive disorders, schizophrenia and anxiety, although ACT's effect on Borderline Personality Disorder was not clear (Öst, 2014). One randomized control trial assigned 93 participants experiencing mild mental distress to either ACT or a waiting list condition (Fledderus, Bolmeijer, Smit, & Westerhof, 2010). This study indicated that participants in the ACT condition had greater emotional and psychological well-being both directly after treatment and during the three-month follow-up. The study also indicated that psychological flexibility mediated the relationship between being in ACT congruent

therapy and increase in quality of life. Additionally, studies have indicated increasing psychological flexibility can improve levels of depression in people with chronic physical illness. Najvani, Neshatdoost, Abedi, and Mokarian (2014), in studying psychological flexibility in women with breast cancer, found that increases in psychological flexibility were correlated with decreases in depression. Additionally, increases in psychological flexibility have been found to be related to increases in work-place well-being (Donaldson-Feilder & Bond, 2004), decreases in worksite stress, (Bond & Bunce, 2000), and increases in job satisfaction (Bond & Bunce, 2003).

One important aspect of Psychological Flexibility is defusion, which can be defined as the ability to separate self from thoughts, rather than regarding thoughts as “fact” or “truth” (Hayes et al., 2004). In other, words, someone who is “fused” with distressing thoughts is likely having more impairment in daily living. One study by Herzberg, et al. (2012) in testing the psychometric properties of a measure of cognitive fusion to anxious thoughts, found that high levels of cognitive fusion to anxious thoughts was significantly correlated to high scores on the Beck Anxiety Inventory, indicated that people who regard anxious thoughts as truth were also likely to experience high levels of anxiety. In this way, having symptoms of a psychological disorder may not strongly affect impairment in quality of life. Further, the idea that “Pain is necessary for art” is a thought upheld by many creatives, dating back before Plato, as previously mentioned. Fusion with this thought may predict increased impairment due to mental distress and symptoms of mental disorder.

Current Study

The purpose of this current study is to determine if psychological flexibility plays a role in the relationship between creativity, specific symptoms of psychological disorder, and impairment in quality of life. Previous literature has proven to be inconclusive regarding the relationship between creativity, psychological distress, and impairment in quality of life. While many studies indicate no relationship between high levels of creativity and certain psychological disorders, recent research has implicated psychotic disorders and disorders involving behavior and mood dysregulation as being linked to creativity (Kyaga et al., 2012). Further, research indicates strong relationships between various types of psychological distress and impairment in quality of life.

Hypothesis 1: How do symptoms of psychological disorder, psychological flexibility, and creative achievement correlate with quality of life? Within this hypothesis, I propose the following hypotheses:

Hypothesis 1A: Consistent with previous findings linking creativity to schizophrenia and bipolar disorder (Kyaga et al., 2012), creative achievement will be positively correlated with the personality dimensions of disinhibition and psychoticism.

Hypothesis 1B: Believability and frequency of the thought “pain is necessary to create art” will be positively correlated with disinhibition and psychoticism.

Hypothesis 1C: Consistent with previous findings linking psychological inflexibility with decreases in quality of life, psychological inflexibility will be positively correlated with decreased quality of life (Cheng, 2003).

Hypothesis 2: The relationship between creativity and impairments in quality of life will be mediated by symptoms of psychological disorders, with psychological

flexibility moderating the indirect pathway between symptoms of disinhibition and psychoticism and impairments in quality of life (see Figure 1).

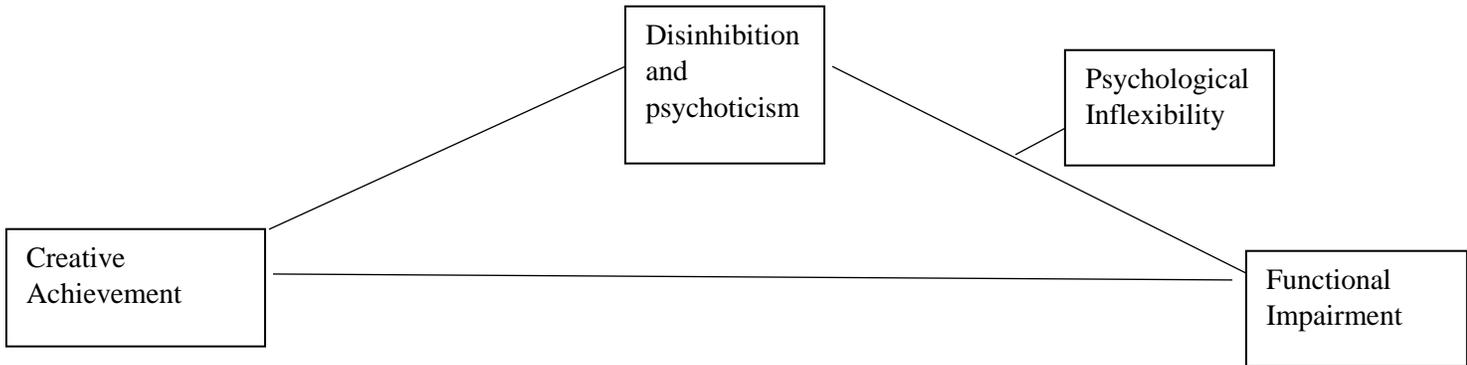


Figure 1 Hypothesized moderated mediation model linking creative achievement to functional impairment through the interactive effects of disinhibition, psychoticism, and psychological inflexibility.

Chapter II: Methodology

Sample and procedure

The sample consisted of college students enrolled in introductory psychology courses at Murray State University. College students encompass a wide variety of individuals with varying degrees of creativity (Evans & Forbach, 1983), psychological distress (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014), psychological flexibility (Bond et al., 2011), and impairments in quality of life (Reibeiro et al., 2017). Therefore, this sample was anticipated to offer sufficient variance in the core measures employed in this study.

152 participants complete the study. Data from 14 participants were excluded due to excess of incomplete responses preventing valid scoring of one or more measures. Data from seven participants were excluded for responding incorrectly to two or more of the five attention checks within the survey. The resulting sample consisted of 131 participants (93 female, 35 male, 2 transgender, 1 identifying as none of these; mean age = 19.24 years, SD = 1.9 years). See table 1-3 for other demographic information of this sample population.

Table 1

Summary of demographic information regarding parent education and household income.

Demographic	% of sample responding
Parent Education	
High School	13.7
Some College	33.6
Bachelor's Degree	31.3
Graduate/Post Graduate	21.4

Table 2

Summary of race/ ethnicity distribution in the current sample

Demographic	% of sample responding
Race/Ethnicity	
American Indian/ Alaskan Native	1.6
Asian/African American	2.4
Black or African American	12.2
Hispanic or Latino	1.6

Table 3

Summary of sample's report of self and family mental health diagnoses

Disorder	% of sample responding	
	Self-history	Family-history
Anxiety	22.1	45.9
Bipolar	0.8	23.5
Depressive	15.3	45.8
Schizophrenia Spectrum	0	9.4
Trauma/Stressor Related	0	9.4
Dissociative	0.8	1.7
Somatic	0	2.5
Feeding/Eating	3.8	12.7
Elimination	0	0
Sleep-Wake	8.5	21.1
Sexual Dysfunction	0	1.7
Gender Dysfunction	2.3	2.6
Disruptive/Impulse Control	1.5	11
Addiction Related	1.5	44.6
Neurocognitive	0	24.8
Personality	1.5	5.8
Paraphilic	0	0.9
Other	2.4	6.8

Measures

Psychological inflexibility. The Acceptance and Action Questionnaire is a 7 question self-report survey measuring psychological inflexibility and experiential avoidance. High scores on each of the seven questions correspond with high levels of psychological inflexibility. The AAQ-II demonstrated an internal reliability of $\alpha = .78-.88$ and test-retest of .81 after three months across six samples (N = 2,816; Bond et al., 2011). The internal consistency of the AAQ-II in the current sample was excellent, $\alpha = .94$. The AAQ-II also demonstrated high concurrent validity with scores on the Beck Depression Inventory ($r = .71$) and Beck Anxiety Inventory ($r = .61$) in previous validations (Bond et al., 2011). High scores on the AAQ-II, indicating high degree of psychological inflexibility, predicted higher scores on each of these measures. Finally, the AAQ-II

demonstrated discriminant validity compared to social desirability, indicating the measure is robust against attempts to respond in a socially desirable manner (Bond et al., 2011).

Symptoms of personality disorders. The Personality Inventory for DSM-5—Brief Form (PID-5-BF) is a 25 item questionnaire that assesses personality traits along five domains: negative affect, detachment, antagonism, disinhibition, and psychoticism. The current study focuses upon the disinhibition and psychoticism scales of this measure. The psychoticism scale includes questions such as “I often have thoughts that make sense to me but that other people say are strange” and “Things around me feel unreal, or more real than usual.” The disinhibition scale includes questions such as “People would often describe me as reckless” and “I’m not good at planning ahead.” Overall scores on the PID-5-BF correlate highly with scores on the full PID-5 measure ($r = .90$; Bach, Bo, & Maples-Keller, 2015). Further, the brief form demonstrated comparable discriminant validity to the full measure, as evidenced by an intraclass correlation of .92 for discriminant validity profiles of both measures. Finally, scores on each of the five facets on the brief form correlated significantly with Clinician-Rated personality disorder symptoms as diagnosed via interview of participants using the Structured Clinical Interview for the DSM-IV. Therefore, the PID-5-BF demonstrates significant utility as a screening tool for symptoms of personality disorder. The PID-5-BF has demonstrated high construct validity. Scores on the PID-5-BF demonstrate high overall reliability ($\alpha = .83$; Fossati, Somma, Borroni, Markon, & Krueger, 2015). The internal consistencies of the PID-5-BF disinhibition scale, $\alpha = .82$, and psychoticism scale, $\alpha = .83$, were good in the current sample.

Impairments in quality of life. The 12- item World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) is self-report measure used to assess impairments across six domains of daily function: interaction with the world, mobility, self-care, life activities, participation in society, and interpersonal function (Federici, Braceletti, Meloni, & Luciano, 2016). This measure assesses average degree of difficulty in typical instances of various aspects of daily living over the past thirty days. Further, the WHODAS 2.0 has demonstrated high internal consistency ($\alpha = 0.98$) and high concurrent validity with the London Handicap Scale ($r = 0.75$) and the Functional Independent Measure ($r = 0.68$; Üstün et al., 2010). Further, the WHODAS has demonstrated utility across populations, including non-clinical populations and internationally across 70 countries. The WHODAS 2.0 12-item has been found to account of 81% of the variance in the full, 36-item version, and demonstrated detection of over 90% of decreased quality of life detected by the 36-item version. The WHODAS 2.0 can be administered in 5-20 minutes, each item requiring a response from 1, being no difficulty experienced, to 5, being extreme difficulty experienced. The 12-item version is scored by adding up the scores of each item, no items require reverse scoring. The internal consistency of the WHODAS2.0 in the current sample was good, $\alpha = .89$.

Creative achievement. Creativity was defined in terms of creative achievement. Creative achievers have been found to have similar thought processes with subjects with diagnosed mental disorder, thereby making creativity defined in terms of cognition insufficient to differentiate creative achievers from subjects with pathology. Given that this study focuses upon what separates creative achievers and subjects impeded by symptoms, it is important that the definition of creativity differentiate these two

populations. Specifically, creative achievement can be defined as, "...exposure to, and acquisition of knowledge and skill in the appropriate endeavor." (Ludwig, 1995). The Creative Achievement Questionnaire (CAQ) is a 96-item self-report survey that assesses creativity in 10 domains: visual arts, music, dance creative writing, architectural design, humor, theater and film, culinary arts, scientific inquiry, and inventions. The measure includes eight questions per creative domain. Respondents are to answer each question with a number from 0 to 7 according to how much training, skill, and achievement they have relating to each question. The CAQ demonstrates divergent validity with self-inflating bias and IQ, indicating that the CAQ is robust against elevated scores due to self-serving bias or higher IQ scores. The CAQ scores also reliably predicted artist ratings of artistic collages completed by each participant ($r = .59$, $N = 39$) in a sample of 117. The CAQ also demonstrates sufficient test rest reliability ($r = .81$) in a sample group of 53 participants (Carson et al., 2005).

Automatic Thoughts Questionnaire. The Automatic Thought Questionnaire measure was originally created to measure frequency and intensity of negative automatic thoughts in participants with mental distress. In studies concerned with the effectiveness of ACT, the ATQ was modified to measure the frequency and believability of thoughts. Scores on the ATQ are positively correlated with high scores on the AAQ-II, indicating that frequency and believability of negative automatic thoughts correlated with high levels of psychological inflexibility (Ruiz & Odriozola-Gonzalez, 2016). For this study, a modified an ATQ will was used to obtain participants ratings of frequency (5 point Likert with higher scores indicating greater frequency) and believability (5 point Likert

with higher scores indicating greater believability) of the thought “pain is necessary to create art.”

Procedure. Participants logged on to the SONA interface and provided informed consent. Each participant then completed the AAQ-II, WHODAS, PID-5-BF, ATQ item, and the CAQ. Participants were then directed to a window in order to answer demographic information, including age, gender, race, and ethnicity. Participants were then debriefed.

Statistical Analysis

Hypothesis one. Pearson product moment correlations were calculated between core study measures: For hypothesis 1A, the relationship between creative achievement (CAQ) and the psychoticism and disinhibition subscales of the PID-5 was explored. For hypothesis 1C, the relationships between psychological inflexibility (AAQ-II) and impairments in quality of life (WHODAS) was explored. For hypothesis 1B, the relationship between the ATQ Believability and Frequency scales and the psychoticism and disinhibition subscales of the PID-5 were explored. Using G-Power v3.1.9.2 and assuming the presence of a medium effect ($r = .20$), an alpha of .05, and a power of .80, 67 participants were needed to power these correlational analyses. The obtained sample size of 131 was adequate to power these analyses.

Hypothesis two. To test the moderated mediation model, PROCESS v3.0 macro for SPSS model 14 was used (Hayes, 2018). A bootstrapping technique was used to estimate the indirect effect from 10,000 bootstrap samples. Bias corrected 95% confidence intervals were calculated, and indirect effect estimates were considered significant if the confidence intervals did not contain zero. The conditional and

interactive effects of psychological inflexibility were assessed to determine the degree to which psychological inflexibility moderates the relationship between symptoms of mental disorders and impairments in quality of life, while simultaneously assessing the indirect effect of psychoticism and disinhibition on the relationship between creative achievement and impairments in quality of life (see Figure 1). Given what is known about the constructs studied, symptoms of psychological disorder seem to have a strong relationship with decrease in quality of life (Reibeiro et al., 2017), which is pervasive in populations with mental disorder. On the other hand, creativity and mental disorder do not appear to have a definitive relationship. The relationships between constructs studied here have varying strengths in the general population. Because of this, it would be likely that the effects involved in the model presented in Figure 1 are somewhere between a medium and a small effect. Based on Fritz and MacKinnon's (2007) guidance for detecting indirect effects between constructs with medium and medium-small effect sizes, a sample size of 116 was needed to adequately power this analysis. The obtained sample size of 131 was adequate to power this analysis.

Chapter III: Results

Data Cleaning. Four univariate and two multivariate outliers were kept in the data set. The participant pool of undergraduate students allows the opportunity to collect diverse scores on each of the measures included. Focusing upon creativity, mental disorder, and impairment in quality of life indicates that scores that deviate from the mean are likely the scores that will capture the relationships upon which the study is concerned. All hypotheses included in this study involve explorations and predictions upon the extremes of each trait and construct. Scores on the CAQ, PID-5, AAQ-II, and WHODAS were logarithmically transformed to reduce skewness, adjusting the values of zero in each, and scores on the CAQ were windsorized per Kline's (2011) recommendation, such that scores with z-values greater than 3.29 were replaced with the highest within-bound range.. Descriptive statistics for each of the transformed and untransformed measures are reported in Table 4.

Table 4

Summary of descriptive statistics for measures used.

	Un-transformed					Log-transformed				
	M	SD	Range	Skew	Kurtosis	M	SD	Range	Skew	Kurtosis
CAQ	17.1	18.9	0-91	1.96	4.36	1.02	.50	0-1.96	-.35	-.50
PID-5-BF Disinhibition	.16	.15	0-.6	1.1	.83	.06	.05	0-.2	.84	.15
PID-5-BF Psychoticism	1.03	.75	0-2.8	.37	-.93	.28	.16	0-.58	-.14	-1.01
WHODAS	20.1	7.19	12-45	1.1	.65	1.3	.14	1.1-1.7	.53	-.57
AAQ-II	21.2	10.5	7-49	.57	-.46	1.3	.22	.9-1.7	-.17	-.1
ATQ-F	1.63	.97	1-4	1.21	.54	-	-	-	-	-
ATQ-B	1.82	.99	1-5	1.05	.23	-	-	-	-	-

Hypothesis One. Internal reliabilities of the measures used are as follows: PID-5-BF, psychoticism, $\alpha = .833$, PID-5BF disinhibition, $\alpha = .816$, WHODAS, $\alpha = .886$, AAQ-II, $\alpha = .995$. Correlations were explored between core study measures using Pearson product moment correlations (see Table 5). Concerning hypothesis 1A, which states that scores on the CAQ will be positively correlated with scores on the psychoticism and disinhibition scales on the PID-5-BF, there was a positive correlation between both creative achievement and psychoticism ($r = .233, p = .007$) and between creative achievement and disinhibition ($r = .260, p = .003$). Concerning hypothesis 1B, which states that scores on the ATQ Believability and Frequency scales will be positively correlated with scores psychoticism and disinhibition subscales on the PID-5-BF, The Frequency scale was positively correlated with the disinhibition subscale ($r = .246, p < .001$), and the Believability scale was positively correlated with both the psychoticism ($r = .184, p < .05$) and disinhibition ($r = .207, p < .05$) subscales. Concerning hypothesis 1C, which states that scores on the AAQ-II will be positively correlated with scores on the

WHODAS, there was a positive correlation between psychological inflexibility and impairments in quality of life ($r = .599$, $p < .001$).

Table 5

Correlation Matrix for Hypothesis 1

	1	2	3	4	5	6	7
1. AAQ-II	-						
2. ATQ-Believability	.204*	-					
3. ATQ-Frequency	.216*	.555**	-				
4. CAQ	.147	.308**	.249**	-			
5. PID-5-BF (Disinhibition)	.498**	.184*	.246**	.260**	-		
6. PID-5-BF (Psychoticism)	.618**	.207*	.167	.233**	.495**	-	
7. WHODAS	.599**	.246**	.345**	.319**	.467**	.578**	-

Note. AAQ-II = Acceptance and Action Questionnaire; ATQ-Believability = Automatic thoughts Questionnaire – Believability scale; ATQ-Frequency = Automatic thoughts Questionnaire – Frequency scale; CAQ = Creative Achievement Questionnaire; PID-5-BF = The Personality Inventory for the DSM-5, Brief Form; WHODAS = World Health Organization Disability Assessment Schedule 2.0.

* $p < .05$, ** $p < .01$,

Hypothesis Two. Hypothesis two proposed that the relationship between creative achievement and impairment in quality of life would be mediated by scores on the psychoticism and disinhibition scales on the PID-5-BF, and that the relationship between scores on these scales and impairment in quality of life would be moderated by

psychological inflexibility. Before testing the conditional indirect effect of the proposed mediators at various levels of the moderator, the indirect effect of the proposed mediators were first assessed to determine if these varied as a function of the moderator (Hayes, 2018). The indirect effect of disinhibition did not significantly vary as a function of psychological inflexibility (Moderated Mediation Index = $-.004$, $[-.066, .063]$), therefore the disinhibition scale as a proposed mediator was not considered in further data analysis. The indirect effect of psychoticism did significantly vary as a function of psychological inflexibility (Moderated Mediation Index = $.049$, $[.002, .115]$); therefore, symptoms of psychoticism as a mediator was retained for further analysis.

The moderated mediation model exploring the indirect effect of psychoticism (PID-5 Psychoticism) moderated by psychological flexibility (AAQ-II) on the relationship between creative achievement (CAQ) and impairments in quality of life (WHODAS) is presented in Figure 2. Path coefficients and model parameters are presented in Table 6. Higher levels of creative achievement predicted higher symptoms of psychoticism, higher symptoms of psychoticism predicted greater impairment in quality of life, and higher psychological inflexibility predicted greater impairment in quality of life. The interaction between symptoms of psychoticism and psychological inflexibility significantly predicted impairments in quality of life, providing evidence of moderated mediation. There was a total effect of creative achievement on impairment in quality of life independent of its effect on symptoms of psychoticism. Additionally, this direct effect decreased when including the indirect effects of the psychoticism, psychological flexibility, and interaction between the two. Overall, these results indicate

that symptoms of psychoticism and psychological inflexibility interacted to mediate the relationship between creative achievement and impairments in quality of life.

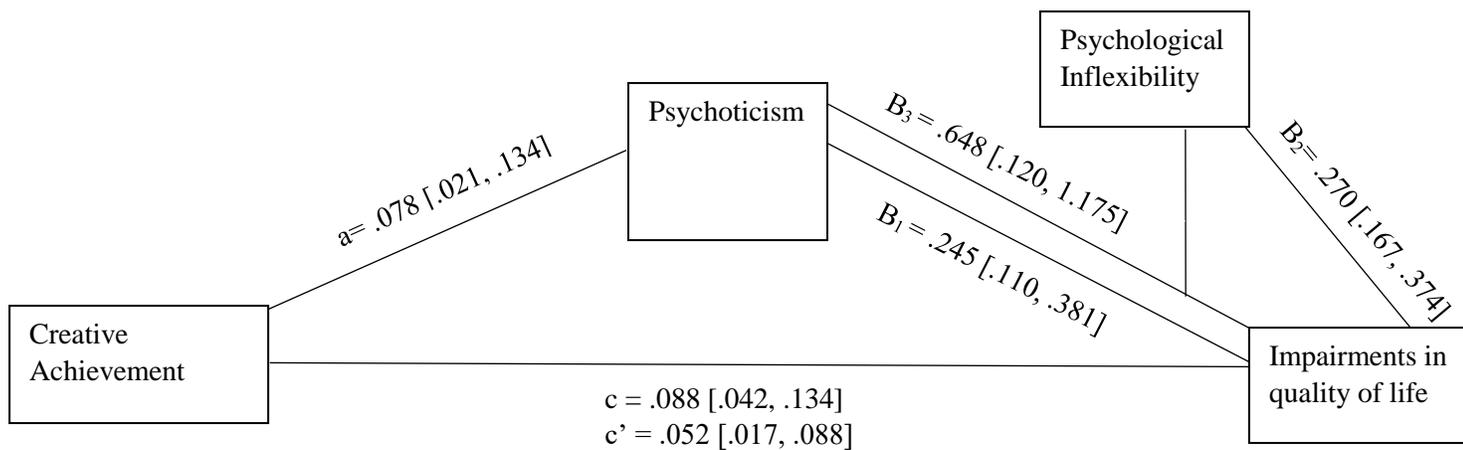


Figure 2. Image of moderated mediation including unstandardized regression coefficients and 95% confidence intervals.

Table 6

Model coefficients exploring the indirect effect of creative achievement on impairment in quality of life via the interactive and conditional effects of symptoms of psychoticism and psychological flexibility.

Antecedent	M (Psychoticism)					Consequent Y (WHODAS)			
	B	SE	T	p		B	SE	T	P
X (CAQ)	A .078	.029	2.718	.008	c'	.052	.018	2.89	.005
M (Psychoticism)	-	-	-	-	b ₁	.245	.068	3.58	>.001
W (AAQ-II)	-	-	-	-	b ₂	.270	.052	5.16	>.001
M X W	-	-	-	-	b ₃	.647	.267	2.42	.017
Constant	-.790	.032	-2.446	.016		1.23	.021	58.4	<.001
						.4		.4	.1
	F(1, 129) = 7.385, p = .008, R ² = .054					F(4, 126) = 29.99, p < .001, R ² = .49			

Regarding the moderation effect, the indirect effect of psychoticism was indicated to significantly vary as a function of psychological inflexibility (Moderated Mediation Index = .049, [.002, .115]). The conditional indirect effects of both psychoticism and psychological inflexibility predicted impairments in quality of life, with higher levels of psychoticism and psychological inflexibility predicting higher levels of impairment in quality of life. Most notably, symptoms of psychoticism interacted with psychological inflexibility to significantly predict impairments in quality of life. A Johnson-Newman analysis of the interaction, as recommended by Hayes (2018), revealed that psychoticism significantly mediated the relationship between creativity and impairments in quality of life when psychological inflexibility was greater than -.142 (i.e., at the 30.53 percentile). This indicates that for the 30.53% of the individuals in this sample low in psychological inflexibility (i.e., scores on the AAQ-II at or below $z = -.66$), symptoms of psychoticism

did not significantly mediate the relationship between creative achievement and impairments in quality of life. Follow-up pick-a-point analyses at one standard deviation above, below, and at that mean of psychological inflexibility indicated there was a significant indirect effect of psychoticism at the psychological inflexibility mean, indirect effect (ab) = .019, 95% CI [.004, .040], and at one standard deviation above the psychological inflexibility mean, indirect effect (ab) = .030, 95% CI [.007, .060]. There was not a significant indirect effect of psychoticism at one standard deviation below the psychological inflexibility mean, indirect effect (ab) = .008, 95% CI [-.005, .027]. See Figure 3 for a visual representation of this moderation effect.

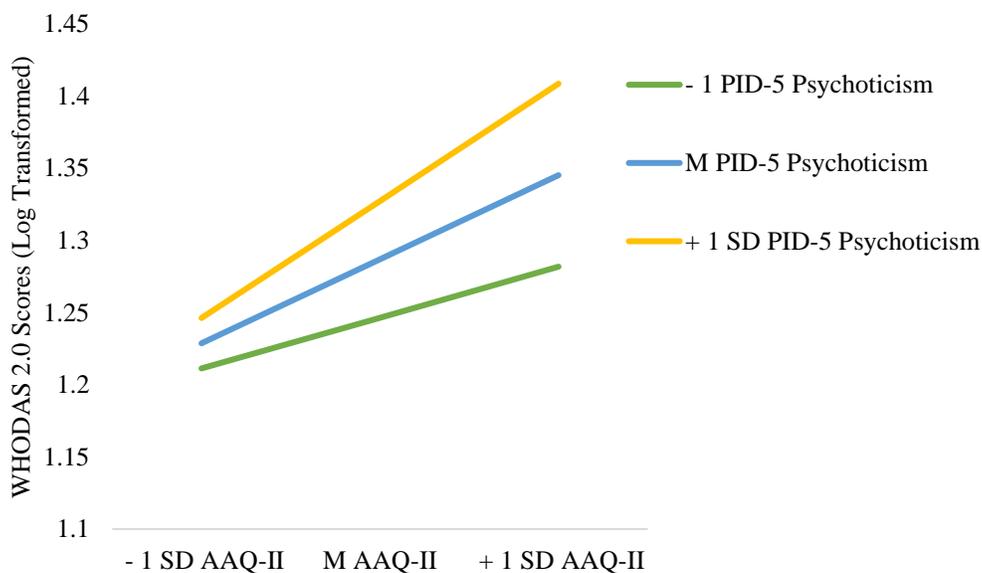


Figure 3 Visual representation of moderation effect of psychological inflexibility and psychoticism on impairments in quality of life.

Chapter IV: Discussion

The goal of the current study was to clarify the relationship between creative achievement and impairment in quality of life. Consistent with previous research, creative achievement was positively correlated with symptoms of psychoticism and disinhibition (Kyaga et al., 2012), and creative achievement was positively correlated with impairment in quality of life (Cheng, 2003). These findings are consistent with previous research indicating creative achievement as a predictor of some symptoms of mental disorder. The obtained findings also demonstrate that high creative achievement is significantly related to some personality disorder dimensions considered in the DSM-V. This suggests that creative achievement may be a risk factor for experience of symptoms of psychoticism, though it is not clear if these symptoms are necessarily sufficient for diagnosable mental disorders. Furthermore, these findings indicate that, while creativity has not consistently been correlated with diagnosable psychological disorder, higher creative achievement is related to lower quality of life, and thus creativity is related to some degree of impairment or psychological distress. This relates to previous literature implicating anecdotal evidence of famous creative individuals who experience noticeable degrees of impairment in quality of life. This also implicates creativity itself as a risk factor for impairment in quality of life, and may serve as guidance regarding probing for impairment when working with creative individuals in the clinical setting. Future research is necessary to explore possible patterns quality of life impairment that may be experienced in creative individuals. The long form version of the WHODAS 2.0

measures the following domain specific experiences of impairment in quality: cognition, mobility, self-care, getting along, life activities, and participation. However, people may score higher in certain domains, not because quality of life is impaired, but because the nature of various creative occupations decreases contact with some of the experiences measured in quality of life measures. For example, life activities may also capture decrease in leisure-related activities because inconsistent hours and varying locations may make some preferred leisure activities less obtainable. For this reason, future studies measuring impairments in quality of life may screen for additional factor that may misleadingly inflate quality of life impairment.

Furthermore, psychological inflexibility was positively correlated with impairment in quality of life. These findings are consistent with previous research indicating that higher psychological inflexibility is related to lower quality of life in various populations, including participants with Obsessive-Compulsive Disorder (OCD; Twohig et al., 2010), and participants suffering from chronic pediatric pain (Wicksell, Melin, Lekander, & Olsson., 2008). This may suggest that, overall, psychological inflexibility play an important role in quality of life when various uncomfortable internal experiences are present.

Scores on the ATQ-frequency were positively correlated with symptoms of disinhibition, but not significantly correlated with symptoms of psychoticism. This may suggest that often having the automatic thought “pain is necessary for art” is not comparable having traits indicating psychoticism. Furthermore, scores on the ATQ-frequency were positively significantly correlated with symptoms of disinhibition, and significantly correlated with symptoms of psychoticism. These results may indicate that

how often this thought comes up has different implications regarding mental health than to what degree a person believes in this automatic thought. Further research may be necessary to further indicate how the frequency of this automatic thought differs from the believability in terms of symptoms and quality of life implications.

In addition, the current study explored creative achievement's indirect effect upon impairment in quality of life in the context of symptoms of via the interactive effect of psychoticism at varying levels of psychological inflexibility. Consistent with hypothesis two, results indicated a significant indirect relationship between creative achievement and impairment in quality of life through symptoms of psychoticism. Further, this indirect relationship was conditional upon psychological inflexibility. Specifically, the indirect relationship between creative achievement and impairment in quality of life via symptoms of psychoticism was influenced significantly by levels of psychological inflexibility that were at over above approximately half a standard deviation below the mean. This indicates that when psychological inflexibility is low, symptoms of psychoticism do not reliably account for a significant amount of the variance in the relationship between creative achievement and impairment in quality of life. In other words, the data suggests that when low levels of psychological inflexibility are present, symptoms of psychoticism do not significantly impact degree of impairment in quality of life in creative individuals. This is consistent with previous research that suggest protective factors may be in place to lessen impairment in quality of life among creative individuals. (Huxley et al., 1964; Carson, 2011). These findings emphasize the utility of psychological flexibility as a factor decreasing impairment in quality of life. This is consistent with previous research indicating that Acceptance and Commitment Therapy

that increase psychological flexibility also reduce functional impairments. For example, lower psychological inflexibility predicted lower self-reported depression severity and increases in self-reported quality of life in participants with Obsessive-Compulsive Disorder (Twohig et al., 2010).

These findings implicate psychological inflexibility as playing a significant role in the degree to which creative individuals experience quality of life impairment and thus finding strategies to maintain or decrease level of psychological inflexibility could be important. One way to encourage psychological flexibility in the classroom involves encouraging students to change their perspective or their strategies toward a particular problem when the current perspective or strategy is not helpful. Future research could further evaluate psychological inflexibility as it varies within the context of strategies used within a subject's creative domain. Regarding acting techniques as an example, would an actor using Stanislavski techniques requiring the practitioner to consider and build every aspect possible of the character they play (Stanislavski, 1936) experience more or less psychological inflexibility than a Meisner practitioner, in which it is assumed that if the actor empathizes with the character, this and instinctual decisions made in moment are more useful (Meisner, 1987).

Limitations and Future Directions

The results of the current study should be evaluated with consideration of the following limitations. First, the sample, consisting of undergraduates enrolled in an introductory psychology course at Murray State University, was not diverse with regards to ethnicity or age. Furthermore, the number of creative achievers within the sample population was limited. Future studies could use sample including more creative subjects

in order to capture more variance within creative populations. This could be accomplished by reaching out to national artistic associations to gather participants, such as the committee for the South Eastern Theatre Conference.

Second, using only creative achievement to measure creativity may not accurately represent the distribution of creativity present in the sample. Creativity in the current study was defined in terms of creative achievement in order to differentiate between creative participants and participants with mental disorder who may share certain cognitive patterns (i.e. divergent thinking and wide allocation of focus) but do not produce creative material. However, using only creative achievement may create a discrepancy in the scores of creative people who experience other limits to their creative achievement. For example, participants may have responded “no” on the CAQ to questions regarding training in creative areas, not because they were not creative enough to attend classes, but because low household income may prevent creative individual from receiving this training. Low household income during childhood may further have an impact on participant scores. In general, low socioeconomic status may limit a person’s access to arts enrichment, including lack of funds to pay for external classes, and attendance at public school in low income areas where arts programs may be limited. Future studies could explore variance of creative achievement accounted for by childhood family household income.

The age distribution of the sample having a mean of 19.24 further limits the extent to which this sample will have realistically obtained high levels of creative achievement. Additionally, items in the CAQ do not encompass all possible ways to creatively achieve in each domain. For example, Section I, regarding achievement in

theatre and film, regards achievements in this domain only in the role of actor or director. However, there are several other outlets in this domain to obtain creative achievement, including lighting design, costume design, and filmography. Thus, some creatively achieving participants may not have scored appropriately on the CAQ because the scope of the questions were too narrow to include their type of creative achievement. These external factors may result in lower CAQ scores for reasons other than low creativity. Future studies may interview creative participants to ensure all aspects of their creative achievement are being accounted for. Conversely, while the CAQ was indicated to have divergent validity in a previous study (Carson, 2005), this divergent validity and robustness against self-inflating bias was indicated in a sample population more representative of the general population. This may not implicate the CAQ as having divergent validity and robustness against self-inflating bias specifically in young adults in undergraduate programs. Future studies could use a creative achievement measure in tandem with measures of creative cognitive patterns and IQ screening measures to protect against additional factors that might be influencing scores on utilized creative measures. Additionally, using creative achievement and measures of divergent thinking may provide additional insight concerning the line between divergent thinkers who are creative achievers and divergent thinkers who do not have creative achievement and suffer from mental disorder. In future studies, divergent thinking measures, such as Guilford's Alternative Uses Test (1967), could be included while still measuring creative achievement. While creative achievement has been shown to be a satisfactory proxy to measure creativity, factors such as low family income and access to sufficient training to enhance creative achievement may result in a discrepancy in a participant's realistic

creative ability and their creative achievement. Future studies may use divergent thinking as a proxy of creativity. These could include a task of constraints of example, in which participants are asked to sketch and label as many novel toys and animals as possible within a specific time limit (Smith, Ward, & Schumacher, 1993).

Additional factors may contribute to the variance in quality of life impairment accounted for by creative achievement. Creativity has been indicated to be more productive in people with weak social ties as opposed to strong social ties (Perry-Smith, 2006), indicating that social isolation characteristic of creative achievement could contribute to quality of life impairment. Future studies could explore the degree of variance in quality of life impairment can be accounted for by social isolation characteristic of creative achievement. Furthermore, creativity was indicated to be the most productive when individual's social ties were composed primarily of others within their creative community (Perry-Smith, 2006). This indicates that creative achievers living in an area with a paucity of others within their creative community may score differently on measure of quality of life impairment than individuals with access to members of their own creative communities. Further studies could explore the difference in quality of life impairment in individuals with and without access to their respective creative communities.

The PID-5-BF was designed to measure personality symptoms in the context of a dimensional system of personality. Because this dimensional system was ultimately not adopted by the DSM-V, the results of the PID-5-BF are not comparable to indications of psychological disorder as defined by the DSM-V. That is, while the PID-5-BF is a reliable indicator of symptom linked to DSM-5 disorders, it cannot demonstrate whether

endorsed symptoms fit criteria for psychopathology. Because of these limitations of the PID-5-BF, future studies may use both the PID-5-BF and another tool sufficient enough to infer presence or absence of mental disorder to better examine what separates highly creative people from people suffering from various mental disorders. For example, standardized clinical interviews could be used to indicate presence or absence of psychological disorder, such as the Structured Clinical Interview for DSM-5, or SCID-5 (First, Williams, Karg, & Spitzer, 2015).

Additional measures of creativity could be added in order to better differentiate between people with mental disorder and creative achievers when both display similar cognitive patterns indicating creativity. Given that when Acceptance and Commitment Therapy is used to decrease psychological inflexibility, subjects with mental disorder have experienced decrease in symptoms and increase in quality of life, additional research could explore if psychological inflexibility significantly impacts impairment in creative individuals suffering from diagnosable mental disorder, in particular, psychotic disorders. Finally, given that previous research has indicated some differences in attentional allocation between creative individuals and those with mental disorder, future studies could explore whether these differences in attentional allocation are correlated with differences in psychological flexibility. For example, the use of a measure of divergent thinking may in addition to use of the AAQ-II could indicate to what degree these constructs are relation.

In summary, creative achievement was found to have a significant direct relationship with quality of life impairment and with symptoms of psychoticism, indicating that creativity plays an important role in the degree to which a participant is

impaired in quality of life. Furthermore, creative achievement was found to significantly indirectly effect impairment in quality of life in the context of symptoms of psychoticism at differing levels of psychological inflexibility. These findings suggest that, and that this impairment may be lessened by interventions at the level of symptoms, but more importantly, at the level of psychological inflexibility. Focusing upon increasing psychological flexibility may be an important factor in improving quality of life, particularly for creative achievers. Additionally, psychological inflexibility was found to have a significant positive conditional relationship with quality of life impairment, suggesting that regardless of degree of creative achievement, psychological inflexibility plays an important role in quality of life impairment overall. Consistent with previous research, this suggests that psychological inflexibility may be an important factor to consider overall when trying to improve quality of life.

Appendix I: Demographics

Demographics

1. How do you describe yourself? (check one)

- Male
- Female
- Transgender
- Do not identify as female, male, or transgender

2. What is your age?

3. How do you describe yourself?

- American Indian or Alaskan Native
- Hawaiian or Other Pacific Islander
- Asian or Asian American
- Black or African American
- Hispanic or Latino
- Non-Hispanic White

4. Does your immediate family history include mental illness? Note number of immediate family with mental illness in appropriate boxes

- Neurodevelopmental disorder (e.g., autism, ADHD, intellectual disability)
- Schizophrenia spectrum or other psychotic disorder (e.g., schizophrenia, schizoaffective disorder)
- Bipolar disorder
- Depressive disorder (e.g., major depressive disorder)
- Anxiety disorders (e.g., social anxiety disorder, panic disorder, specific phobia, GAD)
- Trauma and stressor related disorder (e.g., posttraumatic stress disorder, adjustment disorder)
- Dissociative disorder (e.g., dissociative identity disorder)

- Somatic disorder (e.g., somatic symptom disorder, illness anxiety)
- Feeding and eating disorder (e.g., anorexia nervosa, bulimia, binge-eating disorder)
- Elimination disorders (e.g., enuresis, encopresis)
- Sleep-wake disorder (e.g., insomnia, narcolepsy)
- Sexual dysfunctions
- Gender dysphoria
- Disruptive, impulse control, or conduct disorder (e.g., oppositional defiant disorder, conduct disorder)
- Substance-related and addictive disorder (e.g., alcohol use disorder)
- Neurocognitive disorder (e.g., Alzheimer's, traumatic brain injury)
- Personality disorder (e.g., borderline personality disorder)
- Paraphilic disorder (e.g., voyeuristic disorder)
- Other mental disorder
- Prefer not to answer

5. Have you ever been diagnosed with a mental health disorder. Check all that apply:

- Neurodevelopmental disorder (e.g., autism, ADHD, intellectual disability)
- Schizophrenia spectrum or other psychotic disorder (e.g., schizophrenia, schizoaffective)
- Bipolar disorder
- Depressive disorder
- Anxiety disorders(e.g., social anxiety disorder, panic disorder, specific phobia, GAD)
- Trauma and stressor related disorder (e.g., posttraumatic stress disorder, adjustment disorder)
- Dissociative disorder (e.g., dissociative identity disorder)
- Somatic disorder (e.g., somatic symptom disorder, illness anxiety)
- Feeding and eating disorder (e.g., anorexia nervosa, bulimia, binge-eating disorder)
- Elimination disorders (e.g., enuresis, encopresis)
- Sleep-wake disorder (e.g., insomnia, narcolepsy)
- Sexual dysfunctions
- Gender dysphoria
- Disruptive, impulse control, or conduct disorder (e.g., oppositional defiant disorder, conduct disorder)
- Substance-related and addictive disorder (e.g., alcohol use disorder)

- Neurocognitive disorder (e.g., Alzheimer's, traumatic brain injury)
- Personality disorder (e.g., borderline personality disorder)
- Paraphilic disorder (e.g., voyeuristic disorder)
- Other mental disorder
- Prefer not to answer

6. Have you ever received treatment for a mental health disorder?

- Yes
- No
- Prefer not to answer

7. What is the highest level of education that your most educated parent has attained?

- High school
- Some college
- Bachelor's degree
- Graduate school/Postgraduate school

8. Household Income: What is your total household income?

- Less than \$10,000
- \$10,000 to \$19,999
- \$20,000 to \$29,999
- \$30,000 to \$39,999
- \$40,000 to \$49,999
- \$50,000 to \$59,999
- \$60,000 to \$69,999
- \$70,000 to \$79,999
- \$80,000 to \$89,999
- \$90,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 or more

Appendix II: IRB Approval Letter

**Institutional Review Board**

328 Wells Hall
 Murray, KY 42071-3318
 270-809-2916 • msu.irm@murraystate.edu

TO: Michael Bordieri, Psychology

FROM: Jonathan Baskin, IRB Coordinator JB

DATE: 4/30/2018

RE: Human Subjects Protocol I.D. - IRB # 18-158

The IRB has completed its review of your student's Level 1 protocol entitled *Accomplishments, psychological experiences, and quality of life*. After review and consideration, the IRB has determined that the research, as described in the protocol form, will be conducted in compliance with Murray State University guidelines for the protection of human participants.

The forms and materials that have been approved for use in this research study are attached to the email containing this letter. These are the forms and materials that must be presented to the subjects. Use of any process or forms other than those approved by the IRB will be considered misconduct in research as stated in the MSU IRB Procedures and Guidelines section 20.3.

Your stated data collection period is from 4/30/2018 to 4/29/2019.

If data collection extends beyond this period, please submit an Amendment to an Approved Protocol form detailing the new data collection period and the reason for the change.

This Level 1 approval is valid until 4/29/2019.

If data collection and analysis extends beyond this date, the research project must be reviewed as a continuation project by the IRB prior to the end of the approval period, 4/29/2019. You must reapply for IRB approval by submitting a Project Update and Closure form (available at murraystate.edu/irm). You must allow ample time for IRB processing and decision prior to your expiration date, or your research must stop until such time that IRB approval is received. If the research project is completed by the end of the approval period, then a Project Update and Closure form must be submitted for IRB review so that your protocol may be closed. It is your responsibility to submit the appropriate paperwork in a timely manner.

The protocol is approved. You may begin data collection now.

Opportunity
afforded

murraystate.edu

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