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What Happened to Robin Williams: Creativity, Psychopathology, and Resilience

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Abstract

Previous studies have thoroughly documented the correlation between creativity and both resilience and psychopathology, especially depression. Past research has questioned a causal relationship and instead begun searching for shared characteristics that could explain the correlations. Studies have found rumination to be correlated with depression and creativity. Other studies have found a correlation between optimism and resilience. The present study explored the tendencies toward depression and resilience in creative individuals and a few factors that may play into the difference between the two. The factors analyzed were brooding rumination, self-reflective rumination, total rumination, optimism, and cognitive flexibility. One hundred students from a private university in the southeast completed the Cognitive Flexibility Scale, the Brief Resilience Scale, the Rasch-Derived Center for Epidemiologic Studies-Depression Scale Short Form, the Ruminative Responses Scale, the Revised Lifetime Orientation Test, and the Gough's Creativity Personality Scale for the Adjective Check List. The purpose of the current study was to investigate the relationship between optimism, rumination, cognitive flexibility, and creativity, and either depression or resilience. This study also looked at the relationship between creativity and resilience, depression, optimism, rumination, and cognitive flexibility**.** A multiple regression analysis revealed that resilience had an inverse relationship with brooding rumination, which accounted for 17.4% of the variance in resilience scores. Secondly, depression was found to have a positive relationship with brooding rumination and an inverse relationship with optimism. These two variables accounted for 56.28% of the variance in depression scores. Creativity had a positive relationship with cognitive flexibility accounting for 19.6% of the variance in the relationship.

Keywords: Depression, Resilience, and Rumination

1. Introduction

Robin Williams, Heath Ledger, and Lee Thompson Young; how are they connected? All three of these men were famous actors, they all suffered from mental illness, and they all died because of it. They were all highly creative individuals who were admired for their craft. Robin Williams suffered from depression and eventually committed suicide. Heath Ledger was overwhelmed with the antisocial personality and schizophrenic traits he took on in his role as the Joker in *The Dark Night* and overdosed on sleeping pills. Lee Thompson Young suffered from bipolar depression and also committed suicide. This is a common trend in actors, musicians, and other creative individuals; they suffer from forms of psychopathology[2]. Mental illness is a terrible reality, but the reason it occurs frequently in highly creative individuals has not been identified.

Many studies have explored the relationship between creativity and mental illness. Thus far there has been a considerable amount of conflicting research. The cumulative results have facilitated an accepted consensus that there is a positive correlation between creativity and mental illness, especially concerning mood disorders. Silvia and Kimbrel[21] did not find a correlation, showing one side of the conflicting data. The study indicated there was not a

causal relationship in either direction. Silvia and Kimbrel's study influenced the research on the subject towards finding a common factor linking creativity and mental illness, rather than a direct relationship between the two. Carson[2] found several common factors between creativity and psychopathology, including a genetic vulnerability, novelty-seeking, neural hyper-connectivity, and reduced latent inhibition. He also found a positive correlation between high creativity and alcoholism, bipolar disorder, and schizophrenia spectrum disorders. Carson's findings suggest creativity and psychopathology often coincide due to common traits; however, certain protective traits seem to support creativity while discouraging psychopathology. Additionally, it has been found that individuals showing psychopathology and the aforementioned risk factors showed substantial improvement when the arts were used in therapy[13].

Other studies looked at other potential shared characteristics, such as the tendency towards rumination in both creative individuals and individuals with depressive symptoms, and individuals fitting into both groups[28, 27]. Rumination is defined as "a class of conscious thoughts that revolve around a common instrumental theme and that recur in the absence of immediate environmental demands requiring the thought"[14]. Rumination can be about any topic, whether negative or positive. There are two different types of rumination. The first is brooding, or negative, rumination, which tends to lead to psychopathology. The second is self-reflective, or positive, rumination, which lends itself to creativity[27, 11]. The differences between the two types are found in the results of the rumination on the person engaging in it and the traits of the rumination itself. Self-reflective rumination is contemplative in nature, is associated with positive affect, and is introspective to find personal motivation for creative purposes. Brooding rumination is negatively dwelling on perceived personal flaws[7].

Professions in the fine arts fields are known for attracting individuals with mental illness. Many creative individuals suffer from forms of psychopathology that often present as mood disorders, schizophrenia spectrum disorders, or substance abuse disorders. Other creative types, however, are more resilient against psychopathology[2]. One study showed that actors score high on measures of overexcitability, making them more prone to anxiety and depression[17]. These creative individuals' rumination may play a role in their mental illness. The type of rumination especially may correlate with an individual's propensity towards dysphoria[28, 27]. While the type of rumination may be involved, it is not the only factor. Forgeard et al.[7] found that both types of ruminators produced valuable and original ideas. People with depression tend to produce fewer original and valuable ideas, yet depressed individuals who also brood come up with more than their non-brooding counterparts. This suggests that the type of rumination does not determine mental illness, but there may be factors that lead to both brooding rumination and psychopathology.

Carson[2] suggests a few possible protective factors in those who have both high resiliency and creativity scores. These include high IQ, enhanced working memory, and high cognitive flexibility. The current study will look at cognitive flexibility rather than IQ or working memory. Cognitive flexibility has been found to have a positive correlation with positive mood, meaning that people who are happy are more able to think about a variety of topics or perspectives and less likely to fixate on one idea[10]. People who are more positive have higher cognitive flexibility, leading to greater creativity[5]. Thorndike[24] found that people with high optimism scores had a greater number of "likes," or interests, and tended to be more interested in these activities than their pessimistic or neutral counterparts. This supports the versatility of optimistic (positive) minds, suggesting cognitive flexibility.

Several studies focusing on different groups of people have found a positive correlation between optimism and resilience. Kim and Lee[12] found that South Korean young adults transitioning from college to the workplace are more resilient and successful when they score high on optimism and use positive thinking strategies. Women in the United States suffering from chronic pain caused by osteoarthritis, fibromyalgia, or both are found to be more resilient against pain and temporary negative affect when they have an overall positive affect[29]. A third study found that Palestinian adolescent refugees in Gaza are highly resilient against depression and anxiety when they score high on optimism, among other things[1]. All of these studies are very specific, but they all indicate the positive correlation between optimism and resilience.

1.1 Hypotheses

The present study examines the following hypotheses.

Hypothesis 1: Optimism, self-reflective rumination, total rumination, cognitive flexibility, and creativity scores will be positively correlated with resilience.

Hypothesis 1a: Brooding rumination will have an inverse relationship with resilience.

Research Question 1: Of optimism, brooding rumination, self-reflective rumination, total rumination, cognitive flexibility, and creativity, which are the best predictors of resilience?

Hypothesis 2: Brooding rumination and creativity will be positively correlated with depression.

Hypothesis 2a: Optimism, self-reflective rumination, total rumination, and cognitive flexibility will have an inverse relationship with depression.

Research Question 2: Which of the above variables are the best predictors of depression?

Hypothesis 3: Brooding rumination, self-reflective rumination, total rumination, optimism, and cognitive flexibility will be positively correlated with creativity.

Research Question 3: Which of these variables, including resilience and depression, are the best predictors of creativity?

2. Method

2.1 Participants

The participants were 100 undergraduate students at a small, private university in the southeast. The average age of participants was 20.10 years and the standard deviation of the age was 3.189 years. There were 67 females, 31 males, and 2 chose "other/prefer not to answer." There were 36 freshmen, 22 sophomores, 29 juniors, and 13 seniors. The participants were recruited via contact with professors. Each group's session lasted 15 minutes.

2.2 Instruments

2.2.1 cognitive flexibility (cfs)

The 12-item Cognitive Flexibility Scale was used. The scale measures the participants' awareness that there are options and alternatives available in any situation, willingness to adapt to said situation, and self-efficacy in being flexible[15]. Here is an example from the CFS, "I can communicate an idea in many different ways"[16]. This is a self-inventory Likert scale with six points (1= strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree). Items 2, 3, 5, and 10 are reversed. The CFS has high test-retest reliability, at $\alpha = 0.83$. The construct validity is also high at $r = 0.76 - 0.77$, as are concurrent validities with other cognitive flexibility scales, ranging from 0.65 - 0.88[15].

2.2.2 resilience (brs)

The Brief Resilience Scale is a 6-item self-report inventory measuring the participants' resilience developed by Smith, Dalen, Wiggins, Tooley, Christopher, & Bernard[23]. This is a sample item from the BRS, "I tend to bounce back quickly after hard times"[22]. It is a Likert scale in which the participants rate each item on a five-point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). Items 2, 4, and 6 are reversed items, and then the scores are averaged. This scale is highly reliable, with a Cronbach's alpha at $\alpha = 0.80$ to 0.91 across 4 samples and with test-retest reliability at $\alpha = 0.69$. It is also a valid test, with a concurrent validity with the Connor-Davidson Resilience Scale (CD-RISC) $r = 0.59$[23].

2.2.3 depression (rdcesd-sf)

The participants took the unidimensional, 10 item Rasch-Derived Center for Epidemiologic Studies-Depression Scale Short Form derived by Cole, Rabin, Smith, and Kaufman[4] to screen for depression in the general public. An example from the RDCDESD-SF is this, "I was bothered by things that usually didn't bother me"[4]. Items 3 and 8 are reverse scored. It is a Likert scale where the participants rate how accurate they feel each statement is to the previous two weeks on a scale of 0 to 3 (0 = rarely or none of the time, 1 = some of the time, 2 = frequently, and 3 = most or all of the time). The language describing the range of scores (0 to 3) on the scale was pulled from the original form of the test, the CESD, as referenced by Forgeard et al.[7]. This is a short self-report inventory with scores ranging from 0 to 30. Scores ranging from 0 to 9 indicate little to no levels of depression, scores ranging from 10 to 19 indicate a moderate level of depression, and scores ranging from 20 to 30 indicate significant levels of depression. Cronbach's $\alpha = 0.82$ and the concurrent validity with the Beck Depression Inventory was found to be $r = 0.74$. "Many studies of

concurrent validity with the BDI have found that it correlated highly with many other measures of depression; most of the reported validity coefficients ranged from the middle 0.60s to the middle 0.70s"[3].

2.2.4 rumination (rrs)

The multidimensional Ruminative Responses Scale – 10 measures two forms of rumination: brooding and reflective rumination[25, 26]. Brooding rumination is related to depression while reflective rumination is related to self-analysis. One example of a reflective item from the RRS is, "[indicate how often you] write down what you are thinking about and analyze it;" one for brooding rumination is, "[indicate how often you] think 'Why can't I handle things better?'"[11]. This is also a self-report Likert scale with 10 items; five measure reflective rumination and five measure brooding rumination. The reliability for the reflective scale is $\alpha = 0.79$ and the reliability for the brooding scale is $\alpha = 0.71$[7]. The reliability for the full scale was found to be $\alpha = 0.79$[11]. The scale has high concurrent validity with the full 22-item version of the scale, at $r = 0.90$[6]. The edited language was used as seen in Nolen-Hoeksema, Larson, and Grayson[18] in assessing the gender difference in depressive symptoms. In items 2 and 9, the language was changed from "depressed" to "sad, down, or depressed."

2.2.5 optimism (lot-r)

The Revised Lifetime Orientation Test was used. It is a 10 item, five-point Likert scale (0 = strongly disagree, 1 = disagree, 2 = neutral, 3 = agree, and 4 = strongly agree) that measures optimism. A sample item from the LOT-R scale is, "I am always optimistic about my future"[20]. Items 3, 7, and 9 are reversed items, and items 2, 5, 6, and 8 are filler items. This test is highly correlated with the original Lifetime Orientation Test with $r = -0.64$; the original test looked at multiple traits, including neuroticism, anxiety, self-mastery, etc.[19]. This explains the negative correlation cited. The original test was multidimensional, while the revised test is unidimensional. Its Cronbach's alpha is $\alpha = 0.82$[1], and its test-retest reliability is at $\alpha = 0.78$. This scale has strong concurrent validity with the original LOT of $r = 0.95$[19].

2.2.6 creativity (cps-acl).

The participants took Gough's Creativity Personality Scale for the Adjective Check List[9]. There is a list of 30 adjectives, 18 of them being indicative of creativity (positive) and 12 of them being indicative of a lack of creativity (negative). An example of a positive adjective is "snobbish," and an example of a negative adjective is "honest"[9]. The CPS-ACL is a unidimensional scale. The total of negative points and positive points gives a score between -12 and +18, indicating the participant's creativity level. This scale is acceptably reliable, with coefficient alphas ranging from 0.73 to 0.81. Validity is $r = 0.35$ with Welsh's A-4[8].

3. Procedure

Participants were recruited for this study via contact with professors. A script analysis class, a human sexual behavior class, and a business class were surveyed. The participants were informed of the general subject of the study, personality traits, and the measures being taken to retain confidentiality. They were given a consent form and were given time to read over and sign. After collecting the signed consent forms, the surveys were distributed to the participants. The measures used in the survey measured cognitive flexibility[16], resilience[22], depression[4], brooding and reflective rumination[11], optimism[20], and creativity[9]. The surveys included a questionnaire to gather demographic information about sex, age, classification, major, and minor. After approximately 10 to 15 minutes, the completed surveys were collected. This process was carried out three times, in the three different classes referenced above.

4. Results

4.1 Resilience

The independent variables of optimism, brooding rumination, self-reflective rumination, total rumination, cognitive flexibility, and creativity scores were examined to see which ones significantly predict resilience scores (research question 1). The BRS (resilience) was treated as the dependent variable in a stepwise multiple regression analysis to identify any significant predictors. The result was a regression model that included one significant predictor. This predictor was brooding rumination, where $\beta = -.418$ and $p < .001$. The final model included one variable because the remaining five predictors were negligible in terms of the amount of variance explained. Brooding rumination explained 17.4% (16.6% adjusted) of variance in resilience ($R = .418$, $R^2 = .174$, adjusted $R^2 = .166$). It was a significant predictor of the BRS (resilience) score, F (0, 99) = 20.71, $p < .001$. Hypothesis 1 was rejected, since optimism, self-reflective rumination, total rumination, cognitive flexibility, and creativity were not found to be linked to resilience. Brooding rumination was found to be inversely correlated with resilience, thus leading the researcher to accept hypothesis 1a.

Table 1. *Stepwise regression analysis summary for variables associated with resilience*

Variables	B	*SE* B	β	*t*	*p*	Tolerance
Included Variables						
Ruminative Responses Scale (Brooding Rumination)	-.084	.018	-.418	-4.551	<.001	1.000
Excluded Variables						
Cognitive Flexibility Scale	---	---	.132	1.362	.176	.895
Ruminative Responses Scale (Reflective Rumination)	---	---	-.052	-.537	.592	.898
Ruminative Responses Scale (Total Rumination)	---	---	-.090	-.537	.592	.301
LOT-R (Optimism)	---	---	.110	-.984	.327	.673
CPS-ACL (Creativity)	---	---	.077	-.804	.423	.919

Note. $R = .418$, $R^2 = .174$ ($n = 100$, $p < .001$)

4.2 Depression

The same variables as those in the above test were analyzed to see which significantly predict depression scores (research question 2). The RDCESD-SF (depression) was treated as the dependent variable in a stepwise multiple regression to identify its strongest predictors. The result was a regression model that included two significant predictors. The final model included two predictor variables, with the remaining four predictors failing to account for a sufficient amount of variance. Brooding rumination and optimism significantly predicted depression ($\beta_{brooding} = .511$ where $p < .001$, $\beta_{optimism} = -.329$ where $p < .001$). This model explained 56.2% (55.3% adjusted) of the variance ($R = .750$, $R^2 = .562$, adjusted $R^2 = .553$). The combination of these two items was a significant predictor of the RDCESD-SF (depression) score, F (1, 98) = 26.27, $p < .001$. Hypothesis 2 was rejected because brooding rumination was, but creativity was not, a significant predictor of depression. The researcher also rejected hypothesis 2a because only optimism was found to be an inverse predictor of depression.

Table 2. Stepwise regression analysis summary for variables associated with depression

Variables	B	*SE* B	β	*t*	*p*	Tolerance
Included Variables						
Ruminative Responses Scale (Brooding Rumination)	.706	.113	.511	6.243	<.001	.673
LOT-R (Optimism)	-.375	.093	-.329	-4.021	<.001	.673
Excluded Variables						
Cognitive Flexibility Scale	---	---	-.054	-.689	.493	.733
Ruminative Responses Scale (Reflective Rumination)	---	---	.062	.871	.386	.884
Ruminative Responses Scale (Total Rumination)	---	---	.108	.871	.386	.296
CPS-ACL (Creativity)	---	---	-.053	-.750	.455	.892

Note. $R = .750$, $R^2 = .562$ ($n = 100$, $p < .001$)

4.3 Creativity

The CPS-ACL (creativity) was treated as the dependent variable in a third stepwise multiple regression using the same independent variables to identify its strongest predictors. The result was a regression model that included one significant predictor. The final model included one predictor variable because the remaining six predictors were negligible in terms of the amount of variance explained. Cognitive flexibility significantly predicted creativity ($\beta = .443$, $p < .001$). Seven predictors are insignificant in terms of variance explained, resulting in the final model. Cognitive flexibility explained 19.6% (18.8% adjusted) of the variance ($R = .443$, $R^2 = .196$, adjusted $R^2 = .188$). It was a significant predictor of the CPS-ACL (creativity) score, $F (0, 99) = 23.96$, $p < .001$. Hypothesis 3 was rejected because only cognitive flexibility was found to be a significant predictor of creativity.

Table 3. *Stepwise regression analysis summary for variables associated with creativity*

Variables	B	*SE* B	β	*t*	*p*	Tolerance
Included Variables						
Cognitive Flexibility Scale	.249	.051	.443	4.895	<.001	1.000
Excluded Variables						
RDCESD-SF (Depression)	---	---	-.146	-1.499	.137	.859
Brief Resilience Scale	---	---	.083	.882	.380	.936
Ruminative Responses Scale (Brooding Rumination)	---	---	-.157	-1.654	.101	.895
Ruminative Responses Scale (Reflective Rumination)	---	---	-.009	-.097	.923	1.000
Ruminative Responses Scale (Total Rumination)	---	---	-.102	-1.095	.276	.952
LOT-R (Optimism)	---	---	.096	.907	.367	.734

Note. $R = .443$, $R^2 = .196$ ($n = 100$, $p < .001$)

5. Discussion

Optimism has been shown to be linked with resilience[12,29,1]. The current study did not support these findings, but instead found an inverse relationship between optimism and depression. This correlate is not surprising, because depression involves struggling to find the good in life, while optimism is a general perspective of positivity and hope. In each of the cited studies, the resilience was in the framework of specific situations. These situations were school-to-work transitions in South Korea, women experiencing severe chronic pain, and Palestinian adolescent refugees living in Gaza, respectively[12, 29, 1]. The combination of the situation the individuals were in and optimism may account for the link between optimism and resilience; however, the resilience may have come from an unknown factor or a combination of an unknown factor with optimism.

Carson[2] found that high cognitive flexibility is a protective factor against psychopathology and a predictive factor of resilience. The current study did not support these findings. Most of the participants scored in the moderate range, the mid-50s to the mid-60s, on the CFS. The individuals who scored highest on cognitive flexibility tended to have low to moderate depression scores; however, the individuals with the lowest cognitive flexibility scores varied greatly in depression scores. One possible explanation for the differing results in this study may be the reliability of self-report inventories. The current study did, however, support the correlation between cognitive flexibility and creativity. 19.6% of the variance in creativity was explained by cognitive flexibility scores.

Previous research noted the correlation between brooding rumination and depression. Carson[2] found the connection between depression and creativity lies in common factors, not a direct causal relationship between the two. Verhaeghen et al.[28] found that the link between creativity and depression is found in the common factor of rumination. In further research, Verhaeghen et al.[27] found that specifically brooding rumination is a major factor in dysphoria. The current study supported the findings connecting brooding rumination with depression.

The current study found that resilience had an inverse relationship with brooding rumination, meaning that those who brood are less likely to be resilient. Depression was positively correlated with brooding rumination and inversely related to optimism. Additionally, creativity was positively correlated with cognitive flexibility. Further research into predictor factors of both depression and resilience is needed. This is especially true for resilience, as only 17.4% of the variance in the resilience scores was accounted for by brooding rumination scores.

This study neither found a correlation between cognitive flexibility and depression, nor one between cognitive flexibility and resilience. Carson[2] found that high cognitive flexibility is a protective factor against psychopathology and a predictive factor of resilience. One possible explanation for the different results found in this study is the reliability of self-report inventories. Another possible explanation is the fact that the sample was only from one university. The current study did, however, support Carson's research that found a correlation between cognitive flexibility and creativity; 19.6% (18.8% adjusted) of the variance in creativity was explained by cognitive flexibility.

The nature of the sample may limit insight into measurable relationships because the sample was not specific to a group known for creativity. As a result, the relationships found in this study are not necessarily specific to creative individuals. This also may be the reason creativity was not found to be correlated with depression or resilience. Future research sampling art programs or conservatory environments might expand the range of creativity scores, possibly finding more nuanced effects on resilience and depression.

The hypotheses in this study contained many independent variables for each dependent variable. This led to the rejection of the hypotheses because only parts of them could be accepted. A future study could examine the same variables with separate hypotheses, which would allow the researcher to accept more of them.

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