

The Relationship Between Dreams and Anxiety

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Abstract

Can the unconscious mind offer clues into the root cause of anxiety? This study examines the relationship between dream bizarreness and anxiety, and it tests how metacognition impacts the relationship between these two variables. By illustrating the potential link between dream bizarreness, anxiety and the mediating impact of metacognition, this study aims to see whether or not anxiety is caused by internal, unconscious chaos and confusion. If metacognition lessens the relationship between dream bizarreness and anxiety, it strengthens the hypothesis that internal confusion and anxiety are positively correlated, and it offers sufferers of anxiety a potential course of treatment. For my methods, I created a 30-question survey testing for anxiety, metacognition, and dream-bizarreness. My survey also included demographic information for gender and age. Most of my participants were recruited from my Snapchat story, and the results were all self-reported. I found that metacognition does have a mediating impact on the relationship between dream bizarreness and anxiety, and those with the lowest score on metacognition had a higher correlation between those two variables than when the two variables were tested alone. This may suggest that a lack of self-awareness and internal unconscious confusion may be causing anxiety for some people. However, my study suggests that internal confusion alone does not cause anxiety. Therefore, the use of therapy with an emphasis on metacognition may help treat some patients suffering from anxiety, but not all.

Keywords: Dream-bizarreness, metacognition, internal confusion

Introduction

Dreams are often regarded as windows into the unconscious, but as such could they also provide insight into the root of anxiety through examining what effect making a conscious effort to work out internal confusion has on the relationship between bizarre dreams and anxiety. My dependent variable is anxiety, and my independent variables are dream bizarreness and metacognition. By dream bizarreness, I mean the amount of chaos, incoherency, and confusion one experiences in their dreams. Dreams have long been regarded as psychologically important, with associations with anxiety and “major shifts in emotion” (Merritt, et al., 1994). Dream bizarreness is commonly used as a tool for psychoanalysis, first championed by Sigmund Freud. Historically it has been used to psychoanalyze the unconscious emotional state of patients and has often been used specially to uncover the root of certain neurosis. Often, bizarre dreams are regarded as evidence of “psychic disturbances” that can be cured by means of psychotherapy (Jung, 1931). In this paper, I’m referring to anxiety in the colloquial sense refers to an anxious state of stress or fear. Additionally, psychologists acknowledge that the ability to predict events has an effect on anxiety. When the patient has a sense of control over their surroundings, they then have less anxiety (Zvolensky, et al., 2000). Psychologists acknowledge that anxiety occurs on both a conscious and unconscious level. For example, in one study psychologists found that the application of testosterone causes an unconscious effect on the anxiety that isn’t detected at a conscious level (Honk, et al. 2005). Therefore, anxiety can indeed have an unconscious effect, and could therefore be related to the bizarreness of dreams. Another independent variable I’m using that might be related to dream bizarreness is metacognition, which refers to “thinking about thoughts”, or emotional/thoughtful introspection. As stated, confusion can cause anxiety. Therefore, the presence of introspection can lessen dream bizarreness, which would be indicative

of an unconscious impact on the mind. In one study on metacognition, they found that 87.5% of patients who were treated with therapy that involved the use of metacognition improved, and the effects were long-lasting for 75% (Wells, King, 2006). Metacognition might change the relationship between anxiety and dream bizarreness because if metacognition is used in therapy, and dream bizarreness goes away or lessens but anxiety does not, it suggests that metacognition may impact unconscious confusion but not conscious anxiety. However, if the opposite is true, it suggests that metacognition treats both unconscious anxiety and conscious anxiety.

Hypotheses

Hypothesis 1

Anxiety ~ dream bizarreness + error

I hypothesize that dream bizarreness will have a positive relationship with anxiety.

1. Null hypothesis: Dream bizarreness levels have no impact on anxiety levels.
2. Alternative hypothesis: Dream bizarreness levels correlate with higher anxiety levels.

Hypothesis 2: Covariate model

Anxiety ~ metacognition + error

I hypothesize that anxiety and metacognition will be negatively correlated.

1. Null hypothesis: Metacognition has no impact on anxiety levels.
2. Alternative hypothesis: Metacognition will be negatively correlated with anxiety levels.

Hypothesis 3: Multivariate model

Anxiety ~ dream bizarreness + meta-cognition + error

1. Null hypothesis: The relationship between dream bizarreness and anxiety is mostly explained by metacognition.
2. Alternative hypothesis: The relationship between dream bizarreness and anxiety is not mostly explained by metacognition.

Hypothesis 4: Interaction model

Dream bizarreness ~ anxiety * meta-cognition + error

1. Null hypothesis: Meta-cognition will moderate the relationship between dream bizarreness and anxiety. Those who score lower on meta-cognition will score higher both on anxiety and dream bizarreness. Those who score higher on meta-cognition will score lower on both anxiety and dream bizarreness.
2. Alternative hypothesis: Meta-cognition will not moderate the relationship between dream bizarreness and anxiety. Those who score lower or higher on meta-cognition will not see an impact on their score for anxiety and dream bizarreness.

Methods

For this study, I recruited participants by asking people I knew, such as my sisters, friends, and mom to fill out my survey. Secondly, I posed my survey on Snapchat and offered to pay people 1\$ to fill it out. My total sample size is 24 people. The average age is 20.32 years old. 25% of the sample is male and 75% is female, 0% were nonbinary/other gender.

In this study, participants first received my survey through a link I posted on my Snapchat story. Next, they were informed that the survey was anonymous, and they filled out the survey given as much time as they needed. Finally, they submitted the survey.

I will be using the “Dream Intensity Scale: Factors in the Phenomenological Analysis of Dreams” by Calvin Kai-Ching Yu but I will be editing some of the original questions to make dream bizarreness specifically the main focus. Participants were asked to choose agree or disagree on a scale of 1 to 10 for 10 questions such as: “My experiences in dreams are coherent or narrative (for example, dream experiences similar to a fiction or a series of shows)?”; “People from my real life are contorted in the dream, for example, they turn into an animal or another person”; “I feel certain emotions in dreams that I don’t feel as intensely in real life”. I also included some of my own questions, such as: “Agree or disagree: My dreams tend to be chaotic.” To measure anxiety, I used the Hamilton Anxiety Scale. Items will be scaled on how often they are present (daily, more than half of each week, a few days a week, rarely, or never). Example questions: “How often I experience worries, anticipation of the worst, fearful anticipation, irritability”; “How often I experience fears: Of the dark, of strangers, of being left alone, of animals, of traffic, of crowds.” For metacognition, I will use and edit the “Metacognition Assessment Scale (MAS)” and add some of my own questions, but I will vary it to make it a self-assessment. I will scale the questions on a scale of 1-10 with 10 being most agree and 1 being least agree. Then, I will scale their level of metacognition on a scale of 1-10. Examples of questions: “I am able to define and distinguish between my own emotional states”; “I spend a lot of time thinking about why I do the things that I do.” I made about 5 of my questions negatively keyed in order to make sure my participants were paying attention to what all the questions were asking.

Results

Descriptive Statistics: The demographic variables collected in this study were gender (18 female, 6 male) and age (mean = 20.8, SD = 4.69, range = 18 to 38) (Figures 1.1 and 1.2). The other variables collected were anxiety (mean = 3.18, SD = 0.78, range = 2.9, alpha = 0.89), dream bizarreness (mean = 5.68, SD = 1.04, range = 3.60, alpha = 0.51), and metacognition (mean = 7.26, SD = 1.11, range = 4.6, alpha = 0.71) (Table 1).

Table 1. The mean, standard deviation, range, and alpha reliability for participants' anxiety, dream bizarreness, and metacognition scores. ($N = 24$)

<i>Variable</i>	Mean	Standard Deviation	Range	Alpha Reliability
<i>Anxiety</i>	5.87	1.56	5.80	0.89
<i>Dream bizarreness</i>	5.68	1.04	3.60	0.51
<i>Metacognition</i>	7.26	1.11	4.60	0.71

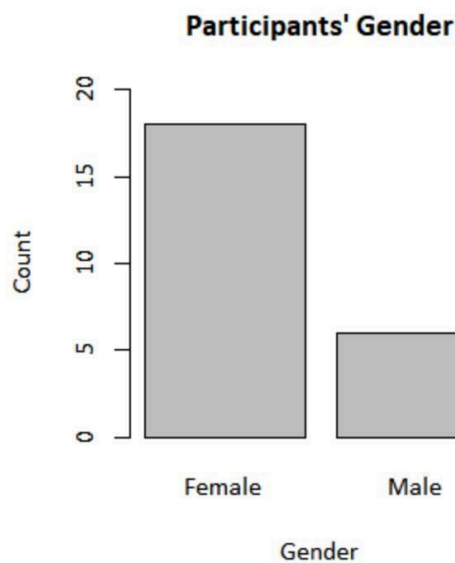


Figure 1.1: Distribution of ages

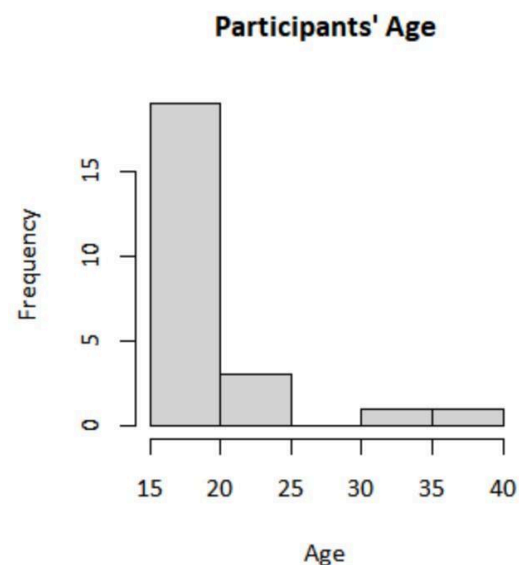


Figure 1.2: Ages of participants

Anxiety was measured using 10 questions from the Hamilton Anxiety Rating Scale, with responses ranging on a scale from 1 to 10, with 1 being least anxious and 10 being most anxious (Hamilton, 1959) (Figure 1.3). Metacognition was measured using a self-created, 10 question survey measured on a scale from 1 to 10, with 1 being the lowest score for usage of metacognition and 10 being the highest (Figure 1.4). Finally, dream bizarreness was measured using 7 questions from The Dream Intensity Scale by Calvin Kai-Ching Yu, and 3 of my own self-created questions. This was also scaled on a range from 1 to 10, with a score of 1 indicating the least bizarre dreams and 10 being the most bizarre dreams (Yu, 2010) (Figure 1.5).

Figure 1.3: Participant anxiety scores

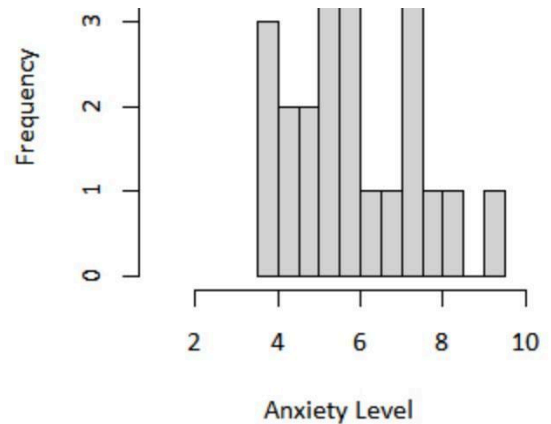


Figure 1.4: Participant metacognition scores

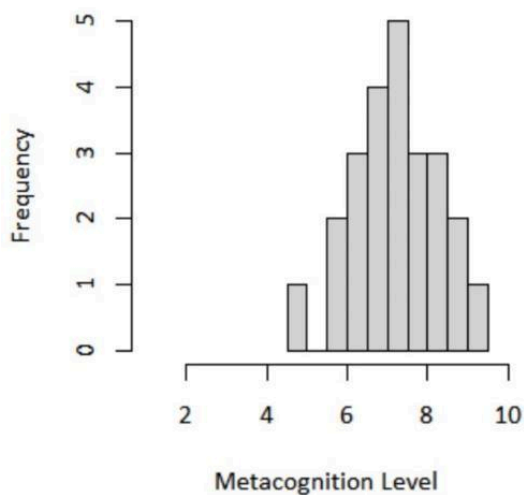
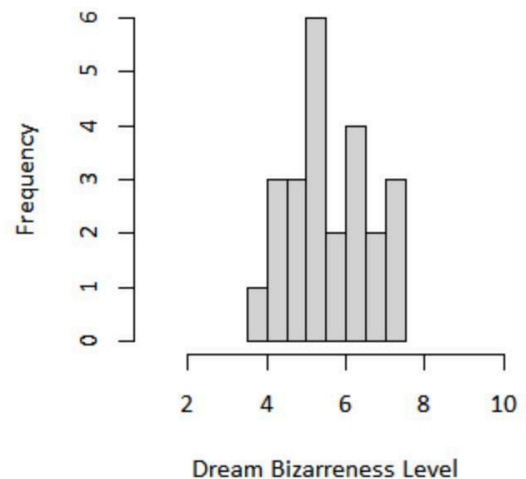


Figure 1.5: Participant dream bizarreness scores



Hypothesis Testing

Hypothesis 1

To test my first hypothesis, I ran two bivariate linear regression models. First, I ran a model for anxiety and dream bizarreness. My null hypothesis for the relationship between dream bizarreness and anxiety was that dream bizarreness would have no impact on anxiety. My alternative hypothesis was that dream bizarreness would correlate with anxiety levels, so that as dream bizarreness levels go up, anxiety levels would go up as well. However, instead I found from my survey results that dream bizarreness was actually negatively correlated with anxiety, with a slope -0.31 and an intercept of 7.63 (Figure 2.1). However, using null hypothesis testing I found that the model has a very low r -squared of 0.43 and a high p -value of 0.33 . This suggests that the existence of a relationship between dream bizarreness and anxiety is not well-supported.

Second, I ran a model on the relationship between anxiety and metacognition. As shown in figure 2.2, anxiety has a positive relationship with metacognition, with a slope of 0.31 and a

Figure 2.1: Bivariate model of anxiety v. dream bizarreness

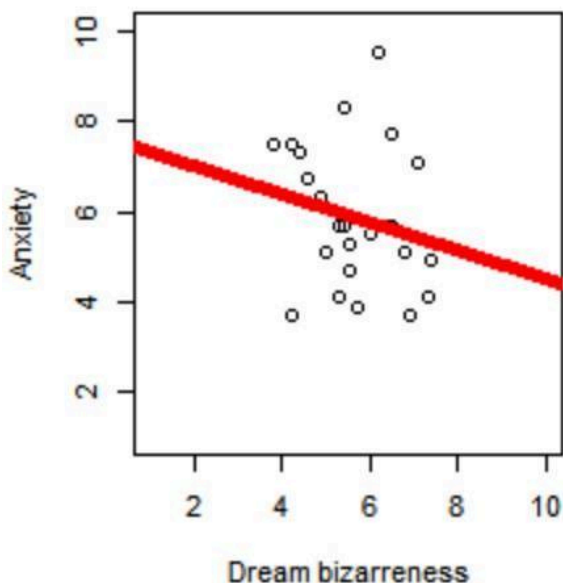
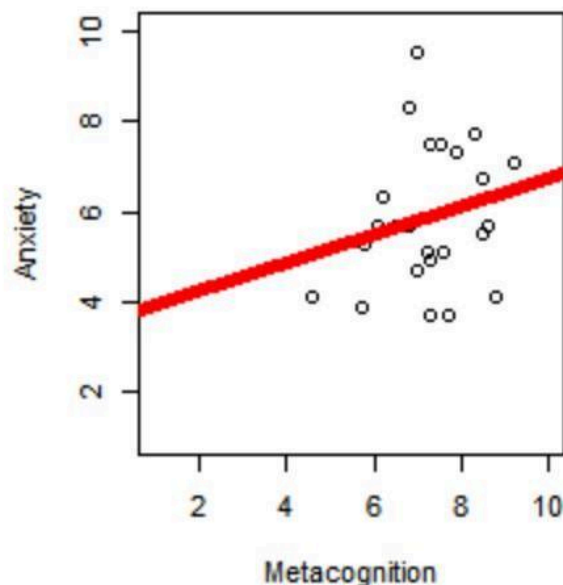


Figure 2.2: Bivariate model of anxiety v. metacognition

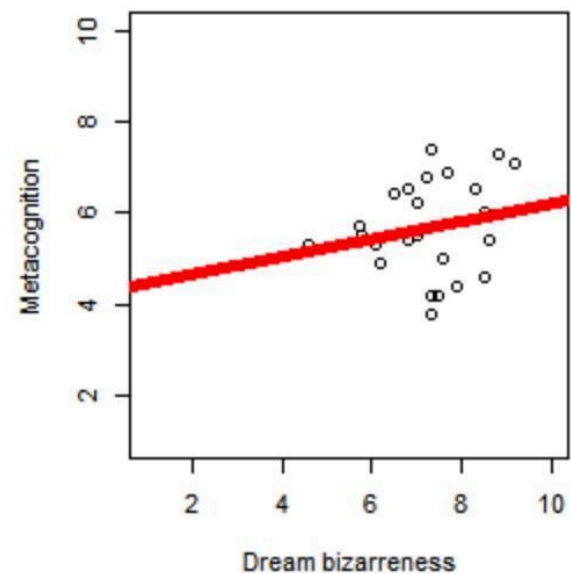


p -value of 0.3 .

Hypothesis 2

For hypothesis 2, I created a covariate model to test the relationship between dream bizarreness and metacognition. My null hypothesis is that there is no relationship between dream bizarreness and metacognition, while my alternative hypothesis was that as higher metacognition scores would correlate with higher dream bizarreness scores. I found that metacognition is slightly positively correlated with dream bizarreness, with a slope of 0.19 and a p-value of 0.34.

Figure 2.3: Covariate model of anxiety v. dream bizarreness

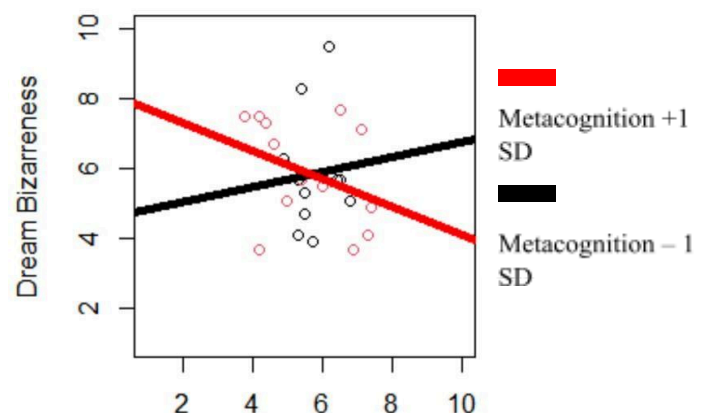


Hypothesis 3

For my third hypothesis, I ran a multivariate regression in order to see if the relationship between anxiety and dream bizarreness could be explained by metacognition. I found that metacognition strengthened the negative relationship between dream bizarreness and anxiety, with the slope going down to -0.39. This may show that metacognition impacts the relationship between anxiety and dream bizarreness, although the difference is not very significant.

Hypothesis 4 For my fourth hypothesis, I created a model with interaction effects between dream bizarreness and metacognition. To do this, I tested I found that the r-squared was 0.12, and the p-value was 0.28. My shows the difference

Figure 2.4: Interaction effect of metacognition on dream bizarreness and anxiety



in the relationship between dream bizarreness and anxiety when participants are split into two groups: those above the mean level of metacognition, and those below it (Figure 2.4). As shown by the red line on the graph, when metacognition is above the mean, relationship between dream bizarreness and the anxiety remains the same as shown by the results in the

graph from hypothesis 1. However, when metacognition is below the mean, as shown by the black line, then dream bizarreness is positively correlated with anxiety.

Table 2.1. *Bivariate, multivariate correlations and interaction effects of variables for each model on anxiety*

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3</u>	<u>Model 4</u>
Effects of variables				
Dream bizarreness	-0.31 [0.002, -0.62]	--	-0.39 [-0.08, -0.71]	0.88 [-2.33, 4.01]
Metacognition	0.31 [0.02, 0.62]	--	0.38 [0.09, 0.68]	1.34 [-0.57, 3.75]
Dream bizarreness * metacognition	--	--		-0.17 [0.58, 0.25]
Model summary				
R-squared	0.04	0.04	0.12	0.12
F-test	0.99 (DF* 1, 22)	0.96 (DF 1, 22)	1.34 (DF 2, 21)	0.93 (DF 3, 20)
P-value	0.33	0.34	0.28	0.44

**Degrees freedom. Confidence intervals in brackets.*

that metacognition was positively correlated with anxiety and dream bizarreness was negatively

correlated with anxiety. This would suggest that more anxious people are generally more introspective and have less bizarre dreams. My third hypothesis, my multivariate model, revealed that when controlling for metacognition, the negative correlation between dream bizarreness and anxiety strengths slightly. Finally, my last hypothesis revealed that people who scored low on metacognition had a positive relationship between dream bizarreness and anxiety, while the opposite was true for those who scored high on metacognition. This is significant because it suggests that introspection may lessen anxiety that is caused by internal unconscious confusion.

This being said, my linear regression models had high degrees of standard errors and high p-values suggesting that these results could have been due to chance. Therefore, this process needs to be replicated in order to make any substantive claims.

Limitations

This study has multiple limitations. First, I collected my sample of participants from my Snapchat story and my family. This biased the results to have more data for females, college-students, and young adults. Therefore, this data may not be applicable to a more general randomized population. Second, the data was self-report and therefore it is based on the subjective opinions of the participants. Introspection, especially, may be difficult to accurately test for in a self-report manner. Third, my sample size was only 24, which means my results have a high probability of errors.

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