Risk Taking, Anxiety and Social Values

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Abstract
Risk taking and anxiety have been topics of previous research for many years. However, there has not been an abundant amount of research done on the effects of social values on anxiety and risk taking. My study looked at the relationship between anxiety, risk taking, and social values, and found that social values do have an effect on the relationship between anxiety and risk taking. In my experiment, participants were asked to answer questions on an online survey. Participants were presented with scenarios where they could make a risky or safe choice. For some of the scenarios, the risky choice was socially valued and for some of the scenarios the safe choice was valued. They were also asked to report their levels of anxiety. A positive correlation was found between risk taking and anxiety when the safe choice was socially valued. However, there was no correlation between anxiety and risk taking when the risky choice was valued, which is not consistent with findings in previous research. Future directions and discussions are presented at the end of the thesis.
Risk Taking, Anxiety and Social Values

Imagine the following scenario: Two roads diverged in a yellow wood, and you took the one less traveled by (Frost, 1916). Taking the road less traveled may have made all the difference, but you would have never known if you didn’t take the risk. Risk taking is defined as choosing an option in a given scenario with a large range of possible outcomes (Figner & Weber, 2011). People take risks every day. Driving to work or taking the bus, asking out a girl from work, and drinking day-old milk are all examples of common risks people might take. Although people often take risks, there are many factors related to the number of risks people take. For example, a person’s anxiety level has been shown to be associated with risk taking; people with high anxiety levels are less likely to take risks (Maner et al., 2007). Another factor that influences whether people will take a given risk is whether the risk is socially valued (Stone, Choi, de Bruin, & Mandel, 2008). Imagine that John has a huge crush on Sally—a girl in his class. Although John might be reluctant to ask Sally out because he fears rejection, asking out a potential romantic partner is considered by most people to be a risk worth taking—that is, the risk is socially valued (Stone et al., 2008). On the other hand, imagine that Fred recently purchased a motorcycle and, while he is excited to take it for a ride, he has misplaced his helmet. In this example, taking the risk (i.e., riding a motorcycle without a helmet) is not socially valued. My study will be examining how the relationship between anxiety and risk taking might change depending on whether the risk is socially valued or not.

Factors Related to Risk Taking

Before describing the research directly related to my research, it is important to understand some of the many factors that are related to whether people decide to take risks or not. For example, Defoe, Dubnas, Figner, and van Aken (2015) found that adolescents tend to
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take more risks than adults. It has also been found that men generally take more risks than
generally take more risks than women (Byrnes, Miller, & Shafer 1999). Different situational factors, like being around one’s peers, can also affect risk taking (Gardner & Steinberg, 2005). Specifically, people portray more risky behaviors when bring watched by their peers as compared to when they are alone. Also, it has been found that domain (i.e., taking risks in a health, recreation, career, or finance domain) can have an effect on risk taking (Blais & Weber, 2005). For example, some people might be more comfortable taking a financial risk (e.g., gambling) but less comfortable with taking a health risk (e.g., eating week old pizza.), while other people might be more comfortable taking a health risk relative to a financial risk. Overall, a number of studies have found that being a part of a certain group or in a particular situation can greatly increase or decrease risk-taking behavior.

Anxiety and Risk Taking

Anxiety is characterized by feelings of tension, worried thoughts and physical changes like increased blood pressure when there is a presence of potential threat (Barlow, 1988). As stated before, a large body of research has found that people with higher amounts of anxiety tend to take fewer risks than people with low amounts of anxiety (e.g., Maner et al., 2007). Maner et al. found evidence for a relationship between anxiety and decisions that involve avoiding a risky option in a given scenario. In this study, undergraduate students completed questionnaires assessing anxiety and then competed the Balloon Analogue Risk Task (BART). The BART is a computer task that serves as a behavioral indicator of risky decision-making. In this task, students pumped up computerized balloons and were rewarded with money for each pump, but would lose the money if the balloon popped. The findings showed that high levels of anxiety were associated with less risk taking—that is, pumping up the balloon less. In describing their
results, Maner et al. stated that this relationship could be attributed to the link between anxiety and fear. Thus, these findings between anxiety and risk taking suggest that people with anxiety will avoid risky situations (Maner et al., 2007).

However, it is not always the case that increased anxiety leads to a decrease in risk taking. Sometimes specific variables can influence the relationship between anxiety and risk taking. Nicholson, Soane, Fenton-O’Creev, and Willman (2005) presented five different domains where risk taking can be measured: recreation, health, career, financial, and social. Along with measuring risk taking, Nicholson et al. (2005) measured his participant’s personality with a number of different personality measures. The most relevant measure for my study is that they measured neuroticism, which is closely related to anxiety (Luteijn & Bouman, 1988). Nicholson et al. (2005) found that risk taking was negatively correlated with neuroticism in recreation, career, financial, and social risks. However, in the health domain, they actually found a positive relationship between risk taking and neuroticism. This is surprising because it demonstrated that high neuroticism—a construct closely related to anxiety—was related to more risk taking in the health domain.

In another study investigating the relationship between anxiety and risk taking, it was found that the level of ambiguity could change the relationship between risk taking and anxiety (Smith, Ebert, & Broman-Fulks, 2016). Ambiguity refers to how well the likelihoods of different outcomes are known. For example, imagine there is a container with 100 pieces of candy in it, some are red candies, some are yellow candies. You have to guess whether or not a red candy will be picked. If you were told nothing about how many red or yellow candies there were in the container, that would be considered a situation of high ambiguity because you do not know the likelihood that a red or yellow candy will be picked. On the other hand, if you were told there
were 50 red candies and 50 yellow candies, then that would be a situation of low ambiguity because the exact probability of drawing a red candy is known. In order to test whether the amount of ambiguity influenced the relationship between anxiety and risk taking, Smith et al. (2016) had participants complete multiple personality measures, including a measure of anxiety, and completed a modified version of the BART. The BART was modified such that one group of participants completed a high ambiguity version, while the other group completed a low ambiguity version. Smith et al. (2016) found that in high ambiguity situations, there was less risk taking in people with higher levels of anxiety; however, in cases of low ambiguity, anxiety and risk taking were not related.

As stated before, the typical relationship that has been found in previous research is that anxiety and risk taking have a negative relationship in that high anxiety is associated with less risk taking (e.g., Maner et al., 2007). However, the studies noted above show that it isn’t always the case due to the findings that different situations and scenarios can affect the relationship between anxiety and risk taking (Nicholson et al., 2005; Smith et al., 2016). Therefore, I examined another variable that I predicted would change the relationship between anxiety and risk taking: whether taking a risk is socially valued or whether playing it safe is socially valued.

**Social Values and Risk Taking**

Making decisions usually involves trying to decipher which option is best in a given situation. One way to figure this out is to think about what option most other people would think is best. In other words, they might think about which option is most socially valued. Rohan (2000) defined social values as what people perceive the preference of others in a situation. For example, imagine that a person who is car shopping decides to buy a very expensive, nice-looking car rather than a simple car that works just the same. They might do so because they
think that people will perceive them in a positive way, and that it would be more socially valued than a cheap car (Rohan, 2000). Stone and Allgaier (2008) explain that decisions made are influenced not only by one’s own beliefs, but also by beliefs of what other people will likely value. In this way, people’s decisions on whether to take a risk or not can be affected by what they perceive to be the socially valued option.

Not only can social values influence people’s decisions for themselves, they can also influence decisions made for other people. Interestingly, it appears that decisions made for other people are even more influenced by social values than decisions made for the self. This can lead to self-other differences in risk taking—that is, differences between what people would choose for themselves and what they recommend other people do (Stone, Choi, de Bruin, & Mandel, 2013). Stone et al. had students answer a questionnaire containing 12 scenarios involving risk, including physical safety risk (e.g., riding a motorcycle without a helmet) and relationship risk (e.g., asking someone out on a date). The students either made decisions for themselves or a decision for a friend. It was found that for decisions involving safety risks, people would make more risky decisions for themselves but wouldn't recommend these risks to a friend. In contrast, when looking at relationship scenarios, people recommended their friends take more risks than they were willing to take for themselves. These findings showed that self-other differences would occur in risk taking scenarios. People recommended other people to play it safe with the safety risks, but encouraged them to take the risk with the relationship risk. Stone et al. stated that this can be attributed to the social values of the different risks. In short, people will recommend the socially valued option for other people within a scenario. If taking a risk is socially valued, then that is what people would recommend another person do in a situation. If
safety seeking is socially valued, then people would recommend safety seeking to another person.

**Social Values, Anxiety, and Risk Taking**

Reviewing all the information presented, it is clear that social values and anxiety are related to risk taking. However, what is not yet known is whether social values change the relationship between anxiety and risk taking. There is some empirical evidence that suggests this might be the case. As stated before Nicholson et al., (2005) assessed people’s risk in five different domains and measured participant’s neuroticism—a construct closely related to anxiety. They found that risk taking was negatively correlated with neuroticism, except for in the health domain where risk taking was positively correlated with neuroticism. While there are many differences between the domains, one major difference is whether the risky or safe choice in the situation is socially valued. For example, in the recreational domain (e.g., scuba diving), the risky option is likely to be socially valued. However, in the health domain (e.g., smoking, heavy drinking), the safe option is likely to be the socially valued option. Therefore, the difference between the domains may have to do with which option is socially valued, the risky option or the safe option. Although it is possible that the reason for the different findings across the different domains was due to differences in social values, the study by Nicholson et al. (2005) was not designed to test this idea. Therefore, my study was designed to fill this gap.

**Current Study**

In my study, I looked at the relationship between social values, anxiety, and risk taking. Participants first answered a series of “what would you do” questions that were centered in different domains. Each question had two options to choose from, a risky option and a safe option. In some of the questions the risky option was socially valued (e.g., asking someone to
dance) and in some of the questions, the safe option was socially valued (e.g., not taking someone else’s ideas and presenting them as your own). Once the participants answered this series of questions, they completed a personality questionnaire to assess their level of anxiety. In this study, I had three hypotheses. First, I hypothesized that people would take more risks when the risky option was socially valued as compared to when the safe option was socially valued. Second, I hypothesized that when the safe option was socially valued, there would be a positive correlation between anxiety and risk taking. Lastly, I hypothesized when the risky option was socially valued, there would be a negative correlation between anxiety and risk taking.

Method

Participants

The sample consisted of 144 participants. The participants came from Amazon’s Mechanical Turk (MTurk). There were 76 male participants that accounted for 52.8% of the participants, 67 female participants that accounted for 46.5% of the participants, and 1 participant who preferred not to disclose their gender that accounted for .7% of the participants. Participants’ mean age was 33.96 and the standard deviation was 9.20. The participants were each given compensation of $0.75 for completing the study.

Measures

Risk taking was measured by presenting participants with 12 scenarios (see Appendix). Each scenario described a particular situation and the participants could play it safe or take a risk. These scenarios included six scenarios where the risky option was valued and six scenarios where the safe option was valued. This means that in six of the scenarios, the risky option was socially valued and for the other six scenarios, the safe option was socially valued. For example, one question stated:
A coworker brings his brand new motorcycle over to your house. He is clearly excited about his bike and tells you what it’s capable of. While showing off the bike, he asks you if you would like to take a ride around town to test it out. He does not have a second helmet for you to wear but assures you that you will be ok without it. Would you:
A. Take a ride without a helmet
B. Not take a ride without a helmet.

Again, all of the scenarios consisted of a choice between taking a risk (e.g., riding a motorcycle with no helmet) and playing it safe (e.g., not riding the motorcycle). Also, the scenarios spanned a number of different risk domains (e.g., relationship, safety, financial) so I could assess the risk taking behavior across multiple situations and scenarios. To create the scenarios, I gathered and expanded a few questions from the domain specific risk taking (DOSPERT) scale (Blais & Weber, 2006). I also acquired a few scenarios from those used by Stone et al. (2013). Then, I complied the questions into one document and changed them to state a question with two answer choices for the participant to choose from.

To measure anxiety, I used the Depression, Anxiety and Stress Scale (DASS; Lovibond, & Lovibond, 1995). Participants were asked to rate how much a particular statement related to them. For example, a question would be “I find it hard to wind down” and the participant would answer one of the following on a 1-4 point scale: 1. Did not apply to me at all; 2. Applied to me to some degree, or some of the time; 3. Applied to me a considerable degree, or a good part of time; 4. Applied to me very much, or most of the time. While the DASS also measured depression and stress, our study focused on the responses for the anxiety sets of questions, which were 7 out of the 21 total questions (7 for depression, 7 for stress, and 7 for anxiety).

Procedure
After signing up to participate, participants were given a brief statement of the purpose of the research study, the risks, an explanation that participation was voluntary, and the contact information of Andrew Smith (Faculty Advisor) for any questions they may have concerning the experiment. After agreeing to participate, the participants were first given instructions. The instructions stated that they were going to read about a situation, and were then asked what they would do in that situation. They were asked to answer as honestly as possible and there were no right or wrong answers. They were also told when thinking about each situation to be sure to answer what they would actually do in that situation, not what they think they should do in that situation. Then, the participants were shown the 12 risk-taking scenarios described above, in a randomized order for each participant, and were asked what they would do in that particular situation. After responding to each scenario, the participants completed an individual difference measure. Specifically, participants completed the DASS-21 survey that assesses their levels of depression, anxiety, and stress. Finally, the participants were asked their age, gender, and education level.

Results

To test my hypotheses, I first calculated the percentage of scenarios that each participant indicated they would make the risky choice for the six scenarios where the risky option was valued and the six scenarios where the safe option was valued. This created two risk-taking scores for each participant—one for the scenarios where the risky option was socially valued and one for the scenarios where the safe option was socially valued. With both scores, higher values indicate that the participant was willing to take more risks.

My first hypothesis was that people would take more risks when the risky option was socially valued as compared to when the safe option was socially valued. I conducted a paired
samples t-test comparing the risk taking scores when the risky option was socially valued and when the safe option was socially valued. I found people did in fact choose the risky option more where the risky option was socially valued ($M = .52, SD = .25$) than when the safe option was valued ($M = .28, SD = .25$), $t(143) = 9.69, p < .001, d = .96$). This confirms that people were selecting the risky option more often when it was valued than when the safe option was valued.

My second hypothesis was that there would be a positive correlation between anxiety and risk taking when the safe option was socially valued. I ran a correlational analysis to test this hypothesis. My hypothesis was supported by the results of my correlational analysis that there was a significant positive correlation between anxiety ($M = .14, SD = .69$) and risk taking for the scenarios where the safe option was socially valued, $r(142) = .33, p < .001$. In other words, when the safe option was socially valued, people with higher anxiety tended to take more risks.

My last hypothesis was that there would be a negative correlation between anxiety and risk taking when the risky option was socially valued. I ran a correlational analysis to test this hypothesis. My hypothesis was not supported by the results of correlational analysis in that there was not a significant correlation between anxiety and risk taking in the scenarios where the risky option was socially valued, $r(142) = .08, p = .327$. This finding indicates that people with high anxiety and people with low anxiety were equally likely to take risks when the risky option was socially valued.

**Discussion**

In my study, I examined the effects of social values on the relationship between anxiety and risk taking. My results concluded that more people took risks when the risky option in the scenario was socially valued as compared to when the safe option was socially valued. This finding is consistent with previous research showing that people’s decisions are influenced by
what is socially valued (Rohan, 2000). Furthermore, my study found no significant correlation between risk taking and anxiety when the risky option was valued. These results are not consistent with previous research since it is typically found that anxiety and risk taking are negatively correlated (Maner et al., 2007). Finally, my study found a positive correlation between risk taking and anxiety when the safe option was valued. This result is somewhat consistent with previous studies that found that other factors (e.g., domain, ambiguity) change the relationship between anxiety and risk taking (Nicholson et al., 2005; Smith et al., 2016). So over all, while I found no relationship between anxiety and risk taking in situations where the risky option was socially valued, I did find a positive relationship between anxiety and risk taking when the safe option was valued.

There were a few potential limitations with the study. While my study consisted of a reasonable number of participants, a larger sample might give more confidence that the relationships found in this study will generalize to the general population. Another limitation could be the measure of anxiety. Although the effectiveness of the DASS has been supported by previous research, it only had 7 questions that focused on anxiety in particular. If another measure was used it might give fuller picture of extent to the anxiety that a participant may have. For example, the State Trait Anxiety Inventory (STAI) measure has 40 questions that measure the current anxiety state of participants and how anxious they are in general in everyday life (Spielberger, Gorsuch, Lushene, Vagg & Jacobs, 1983). If this study was to be replicated and another measure of anxiety was used, perhaps there would be a stronger correlation between anxiety and risk taking when relating to social values.

There were also some potential limitations within the questions we asked about risk taking. First, the scenarios were all hypothetical. This is a limitation because people may think
they know what they would do in a certain situation, but truly there is no way to know until they are actually in that situation. Secondly, there might have been other differences across the scenarios where the risky option was valued and the scenarios where the safe option was valued, other than just social value. For example, the risk associated with riding a motorcycle without a helmet would be death or serious injury, while the risk associated with asking someone else on a date would be feeling down for a little while. Future research should focus on these limitations and find creative ways to get around them to provide more support for the relationship between anxiety, risking taking, and social value that I found.

My research provides evidence that to understand when people will take risks, we must not only know about anxiety, but we must also know whether the risky option is socially valued or not. These findings could spark a new direction in research where we might be able to influence people into taking more risks if we emphasize that they are socially valued. If more evidence is found that further supports the notion that social values are a driving force of risk taking, we could potentially use these findings in advertisements, commercials and decision-making tasks, to sway people’s judgments when they are put in a situation where taking risks would be a good thing. For example, if we wanted to persuade someone to ask someone else on a date, we could perhaps nudge them to do it with stating that it would be socially valued to do so. This information to persuade could be very vital to many industries across the board.

While the findings may not have been completely conclusive, the information found in this study could be a very important basis for future research. Clearly, social values do have an effect on the relationship between anxiety and risk taking. Particularly in a situation where the safe option is valued, people with higher anxiety tend to take more risks. Although I did not find a significant negative correlation between risk taking and anxiety, many previous studies have.
Therefore, this should be looked into further to see if there are any underlying factors that cause this relationship between anxiety and risk taking. Overall, my study provides compelling evidence that could be very useful in future research.
References


Appendix

Six risk taking questions where the risky option is socially valued:

A group of your coworkers are going bungee jumping. They are trying to get you to join the group, but you are reluctant and give the excuse that it is too expensive. Your coworkers offer to pay for the trip so you can go bungee jumping with the group. Would you:
  o Go bungee jumping
  o Not go bungee jumping

You have been invited to an adventurous weekend with a group of people. Included in the weekend’s activities is whitewater rafting. You have never tried the experience and do not know what to expect. Would you:
  o Go whitewater rafting
  o Not go whitewater rafting

The company you work for has offered you a promotion. The new job would give you a leadership role within the company and an increase in salary. Your supervisor has made it clear that you are not required to take the new position because it would require you to move a few hundred miles away, far away from your friends and family. Would you:
  o Take the new position and move away from your friends and family.
  o Stay in your current position.

You are approached by an acquaintance about a new company that she is starting. She mentions that it is a financial assistance company, which you know nothing about. After hearing a lengthy description of company and its mission, it sounds like there is a chance it might be successful. The acquaintance goes on to say that the only thing holding her company back is a lack of funds. She asks you to invest in her company and promises that if you invest and the company is successful, you will be able to double your money in a year. Would you:
  o Invest the equivalent of a month’s salary in the new company
  o Not invest in the new company

You have been interested in dating a close friend of yours for a while. You think this friend might be interested in you too, but you are not sure and are worried about saying anything that might affect the friendship. You are unsure what to do. Would you:
  o Tell your friend how you feel
  o Not tell your friend how you feel

You are at a party and spot an attractive person across the room. You would like to ask the person to dance, but don’t want to get rejected. You are unsure what to do. Would you:
  o Ask the person to dance
  o Not ask the person to dance
Six risk taking questions where the safe option is socially valued:

You have been working hard to get noticed at work. You have shared many of your ideas with your boss but the boss has not been impressed with any of the ideas. One day, a coworker shares a great idea with you. Later, you see your boss, who asks if you have any new ideas. Would you:
- Take the coworker’s ideas and present them to your boss as your own
- Not take the coworker’s ideas

It is tax season. While talking with a financial advisor about your taxes, she makes you aware of different deductions you can make. You look up some different deductions online and find ones that would make you a lot more money although they aren’t completely true to how you used your money this past year. Would you:
- Take questionable deductions on your income tax returns
- Not take the questionable deductions

A coworker brings his brand new motorcycle over to your house. He is clearly excited about his bike and tells you what it’s capable of. While showing off the bike, he asks you if you would like to take a ride around town to test it out. He does not have a second helmet for you to wear but assures you that you will be ok without it. Would you:
- Take a ride without the helmet
- Not take a ride on the motorcycle

You work in a city and take the bus to and from work. After missing the last bus home at night, you decide to walk back to your apartment. Though you know the bus route avoids certain parts of town, you know that there is a short cut that would take you through a more dangerous area. You want to get home as quickly as possible. Would you:
- Take the short cut
- Not take the short cut

You are currently trying to lose weight. You have tried proper dieting and exercise, but the last 15 pounds are just not coming off. You know that taking a diet pill would likely boost your metabolism and help you lose the extra weight. But you also know that diet pills can have dangerous side effects and put you at a greater risk for heart disease. Would you:
- Take the diet pills
- Not take the diet pills

You have been staying up late the past few days trying to study for your exams. Because of your lack of sleep, it gets harder and harder to get through each day and to stay up later at night. You know that taking caffeine pills can help you stay awake longer. But you also know that caffeine pills are dangerous if misused and are potentially addictive. Would you:
- Take the caffeine pills
- Not take the caffeine pills