

Syracuse University

SURFACE

Syracuse University Honors Program Capstone Projects Syracuse University Honors Program Capstone Projects

Spring 5-4-2015

Illusory Correlations in Mental Illness Stigma

Katrina Aberizk

Follow this and additional works at: https://surface.syr.edu/honors_capstone



Part of the [Experimental Analysis of Behavior Commons](#)

Recommended Citation

Aberizk, Katrina, "Illusory Correlations in Mental Illness Stigma" (2015). *Syracuse University Honors Program Capstone Projects*. 860.

https://surface.syr.edu/honors_capstone/860

This Honors Capstone Project is brought to you for free and open access by the Syracuse University Honors Program Capstone Projects at SURFACE. It has been accepted for inclusion in Syracuse University Honors Program Capstone Projects by an authorized administrator of SURFACE. For more information, please contact surface@syr.edu.

Illusory Correlations in Mental Illness Stigma

A Capstone Project Submitted in Partial Fulfillment of the
Requirements of the Renée Crown University Honors Program at
Syracuse University

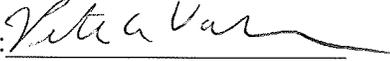
Katrina Aberizk
Candidate for Bachelor of
Psychology, B.A.
and Renée Crown University Honors
May 2015

Honors Capstone Project in Psychology

Capstone Project Advisor:


Leonard Newman

Capstone Project Reader:


Peter Venable

Honors Director:

Stephen Kuusisto, Director

Date: May 5, 2015

Illusory Correlations in Mental Illness Stigma

Katrina Aberizk

Department of Psychology, Syracuse University

May 2015

ABSTRACT

The purpose of this research is to examine people's readiness to form an association between those diagnosed with a mental health condition and negative behavior in the absence of objective evidence for that association. The research expands on a traditional illusory correlation paradigm to include social group information and two types of negative behavioral statements. The traditional paradigm exposes research participants to a series of statements describing the behaviors of members of two different social groups, including desirable and undesirable behaviors, and participants are then required to recall behavioral information and rank members of both groups on a series of character traits.

One hundred and nineteen undergraduate students enrolled in the Introduction to Psychology course, Psychology 205, at Syracuse University in Syracuse, NY, served as participants for this research. The findings demonstrated that the illusory correlation effect was replicated across all conditions and was influenced slightly by negative behavior type. Participants were especially likely to demonstrate a bias toward the control group, perhaps because the negative behaviors of control group members were more unexpected or unusual to participants than negative behaviors of the mentally ill group.

EXECUTIVE SUMMARY

Purpose

The purpose of this research is to examine people's readiness to form an association between those diagnosed with a mental health condition and negative behavior in the absence of objective evidence for that association. This problem is important not only because mental health is a growing issue for youth, adults, and the health care industry, but also because stereotypes surrounding mental illness can often be unjustified, complex, or rooted in relatively limited exposure to mentally ill people. Despite public awareness of mental health issues, a bias against the mentally ill has been long documented.

Illusory Correlation

The current research explores illusory correlations as a potential contribution to mental illness stigma. An illusory correlation functions on basic principles of information processing. The first principle is that information processing can best be described as a constant tension between elaborate and rapid processing. Among other factors, the priority given to either type of processing depends on personal preference for complex explanations for external events (e.g., the assumption that others' behavior is caused by a chain of events rather than events of the immediate environment).

The second principle of information processing suggests that people in general decipher incoming information with only enough thoroughness to reduce uncertainty and no further. The underlying logic is that a satisfactory impression of an external event can be reached more efficiently than an accurate impression. The preference for satisfaction over accuracy is largely due to the vast amount of social information that people can perceive at any moment.

An illusory correlation is formed when an individual makes an association between two events or features of the environment in the absence of objective evidence to warrant that association. The correlation effect has been widely replicated in research and previously explained in part by the unique way in which distinctive stimuli are perceived; specifically, distinct stimuli are very memorable, and social stimuli (i.e., events, objects, or people in the environment) that are distinct in isolation are especially memorable when perceived in conjunction (Hamilton and Gifford, 1976, McArthur and Friedman, 1980, Hamilton et al., 1985, Hamilton and Sherman, 1989, Stroessner and Plaks, 2001, and Risen et al., 2007).

Hamilton and Gifford (1976) were the first to demonstrate the role of distinctiveness-based illusory correlations in the formation of stereotypes. They exposed research participants to a series of statements describing a majority Group A, using a ratio of 18:8 positive-negative behaviors, and a minority Group B, using a ratio of 9:4 positive-negative behaviors, and predicted that people would perceive relationships that did not actually exist. The illusory correlation effect predicts that if people are provided with information about two different groups they will attribute more negative qualities to the group about which they received less information, because the *doubly distinctive* events (negative behaviors of the minority group) will stand out in memory.

Distinctive groups of people include minority groups in society, such as people with serious mental illness. Negative behavior is much more noticeable than positive or neutral behavior, and the observation of negative behavior is a distinctive event. If an individual observes a mentally ill person engaged in a negative behavior, this might qualify as a doubly distinctive event vulnerable to an illusory correlation effect. In this example, even if an individual had no preconceptions regarding the behavior of mentally ill people, the

distinctiveness of the two events in conjunction would be enough to associate the group with the behavior in the individual's mind.

The hypothesis is that the illusory correlation effect will be replicated across all conditions and that this effect will be most pronounced when the group characterized as “diagnosed with a mental illness” is described using a lower ratio of behavioral statements including negative violent behaviors. It is expected that in this condition, group members will be rated especially negatively and their negative behaviors will be especially memorable.

Results

The basic test of the hypothesis was a 2 (Minority group: Diagnosed with a mental illness or Other) X 2 (Group rated: MI or Other) ANOVA. The first variable is between subjects, the second within subjects. To replicate the basic illusory correlation effect, the expected interaction is that groups will be rated more negatively when they are in the minority. This interaction was found, $F(1,117) = 34.76, p < .001$, although contrary to expectations, the rating penalty was not more pronounced for the mentally ill group relative to the other group.

When negative behavior type (violent or nonviolent) was added as a factor – X 2 (Negative behavior type: Violent or Nonviolent) – there was a main effect for negative behavior of $F(1,115) = 39.12, p < .001$. Both groups were rated more negatively overall when the negative statements included violent behavior. The basic illusory correlation effect was slightly more pronounced for nonviolent behaviors, perhaps because the introduction of violent behaviors caused overall ratings of both groups to flatten out. That finding was revealed by a three-way interaction effect between the basic test and negative behavior type that approached significance ($p = .069$).

With respect to the recall of behavioral statements, participants remembered minority behaviors as being more frequent than they actually were. However, this effect was replicated across groups independent of whether the minority behaviors were positive or negative. Negative behaviors in the minority were not uniquely memorable. The only significant difference in recall was that when the negative statements described violent behaviors, participants were more likely to attribute these behaviors to the other group – not those characterized as diagnosed with a mental illness – $F(1,115) = 15.73, p < .001$.

INTRODUCTION

The purpose of this research is to examine people's readiness to form an association between those diagnosed with a mental health condition and negative behavior in the absence of objective evidence for that association. This problem is important not only because mental health is a growing issue for youth, adults, and the health care industry, but also because stereotypes surrounding mental illness can often be unjustified, complex, or rooted in relatively limited exposure to mentally ill people. Despite public awareness of mental health issues, a bias against the mentally ill has been long documented.

Cultural Conception of Mental Illness

A bias against individuals with mental health conditions has been long documented. A vivid example is Shirley Star's presentation at the Annual Meeting of the National Association for Mental Health in 1955. Sharing the results from the first nationally representative study of the cultural conception of mental illness, Star described the public image of the mental health patient to be "a very threatening, fearful thing...mental illness is something that people want to keep as far from themselves as possible" (Frank & Glied, 2006). In 1971, David Rothman published *The Discovery of the Asylum* and characterized asylums as the means to remove people with mental illnesses from larger society, provide them with orderly schedules and discipline, and bring balance to their disordered minds (Rothman, 1971).

A landmark study conducted at Yale University by Langer and Abelson in 1974 demonstrated that even practicing psychiatric clinicians could be vulnerable to social biases against mentally ill people. In this study, 40 psychiatric clinicians were shown the same videotape of a man who had recently applied for a job. Half the clinicians were told that the man in the video was a job applicant and half the clinicians were told that the man was a patient. The

researchers predicted that when the man was labeled as a patient, he would be perceived by the clinicians as more disturbed than when he was labeled as a job applicant. Indeed, the clinicians' opinions surrounding the behavior of the man differed starkly based on the label he had been given. In conditions in which the man had been labeled as a job applicant, clinicians' responses ranged from "realistic, unassertive and enthusiastic" to "candid, conventional and straightforward." In conditions in which the man had been labeled as a patient, clinicians' responses ranged from "negative attitudes the result of frustration" to "tight, defensive, and frightened of his own impulses" (Langer & Abelson, 1974).

The MacArthur Mental Health Module of the 1996 General Social Survey sought to further assess public attitudes toward and about mental illness in a representative population sample. Brief accounts were constructed to depict one hypothetical individual with symptoms of schizophrenia, one developing major depression, one alcohol dependent, one drug dependent, and one average "troubled person" who "sometimes encounters problems in life." Aggregation of the survey responses revealed that on average, respondents predicted that all of the mental health conditions would substantially increase the risk of violence for the symptomatic individual (Link, Phelan, Bresnahan, Stueve, & Pescosolido, 1999). A 1998 cohort study that examined the subjective experiences of relatives of first-admission mental health patients found that 50% of friends and family were making poignant efforts to conceal the illness from others, with over 80% of respondents endorsing the statement that "most people are embarrassed by mentally ill people" (Byrne, 2000).

Since the millennium, there has been much research conducted on the origins of stigma. Attention has been given to the emotional and cognitive mechanisms that contribute to persistent mental illness stigma particularly. For example, some researchers have suggested classical

conditioning as a contributing cause of the bias (Ottati, Bodenhausen & Newman, 2001). Under this theory, young people are conditioned to feel discomfort in situations involving mentally ill people based on their observations of their parents' negative reactions in situations that have involved mentally ill people (e.g., a child sees a parent frown passing a man on the street who is mumbling to himself and learns to avoid people with similar symptoms). Another suggestion has been the just-world hypothesis that essentially maintains the old adage that people get what they deserve. Under this hypothesis, people with mental health conditions are assumed to have behaved in ways that have caused their illnesses to be brought upon themselves (Ottati, Bodenhausen & Newman, 2001).

Popular culture promptly reinforced negative stereotypes about mental illness through character portrayals in major motion pictures such as the Joker in the *Batman* series, Bellatrix Lestrange in the *Harry Potter* series, or Annie Cresta in *The Hunger Games*. Nearly a decade before national tragedies and the 24-hour media cycle brought mental illness to the forefront of American public concern, seventy-two percent of mentally ill characters on television were portrayed as violent, aggressive, and unpredictable. At the same time, a total of forty-five percent of television characters were depicted as violent and aggressive in general (Levin, 2001). Though people with mental illness may be stigmatized in many ways, the dangerousness stereotype is central.

The Illusory Correlation

The current research explores illusory correlations as a potential contribution to mental illness stigma. An illusory correlation functions on basic principles of information processing. The first principle is that information processing can best be described as a constant tension between elaborate and rapid processing. Among other factors, the priority given to either type of

processing depends on personal preference for complex explanations for external events (e.g., the assumption that others' behavior is caused by a chain of events rather than events of the immediate environment).

The second principle of information processing suggests that people in general decipher incoming information with only enough thoroughness to reduce uncertainty and no further. The underlying logic is that a satisfactory impression of an external event can be reached more efficiently than an accurate impression (Stroessner & Plaks, 2001). The preference for satisfaction over accuracy is largely due to the vast amount of social information that people can perceive at any moment. One way to gauge people's preference for complex explanations and intricacy in perception is through the administration of The Attributional Complexity Scale (Fletcher, Danilovics, Fernandez, Peterson & Reeder, 1986).

The Attributional Complexity Scale measures the intricacy of individuals' perceptions of the behaviors of the self and others. Among other features of cognition, the scale is designed to measure an overall motivation for internal and external behavioral attribution (i.e., the extent to which people find the causes for others' behavior to be internal or external), an overall preference for complex explanations for others' behavior (e.g., others' behavior is caused by immediate events versus events in a long chain of action and reaction), and overall introspection (i.e., the extent to which people think critically about their own interactions with others and the consequences that these interactions may have). All participants in the current study completed an Attributional Complexity Scale, disguised for research purposes as a Person Perception Questionnaire [Appendix A] (Fletcher et al., 1986).

An illusory correlation is formed when an individual makes an association between two events or features of the environment in the absence of objective evidence to warrant an

association between them. The correlation effect has been widely replicated in research and explained in part by unique interactions between distinctive stimuli; in other words, distinct stimuli are very memorable, and social stimuli (i.e., events, objects, or people in the environment) that are distinct in isolation are especially memorable when encountered in conjunction (Hamilton & Gifford, 1976, Hamilton et al., 1985, Hamilton & Sherman, 1989, Stroessner & Plaks, 2001, and Risen et al., 2007). The illusory correlation effect is not specific to any particular type of stimuli – objects, behaviors, people, etc. – but merely in order for an illusory correlation to form, an individual must acknowledge that a doubly distinctive event has occurred in his or her environment.

Hamilton and Gifford (1976) were the first to demonstrate the role of distinctiveness-based illusory correlations in the formation of stereotypes. They exposed research participants to a series of statements describing a majority Group A, using a ratio of 18:8 positive-negative behaviors, and a minority Group B, using a ratio of 9:4 positive-negative behaviors, and predicted that people would perceive relationships that did not actually exist. The illusory correlation effect predicts that if people are provided with information about two different social groups they will attribute more negative qualities to the group about which they received less information, because the doubly distinctive events (negative behaviors of the minority group) will stand out in memory (Hamilton & Gifford, 1976, Hamilton et al., 1985, Hamilton & Sherman, 1989, Stroessner & Plaks, 2001, and Risen et al., 2007).

Distinctive groups of people include minority groups in society, and people with serious mental illness are a minority group. Negative behavior is much more noticeable than positive or neutral behavior, and the observation of negative behavior is a distinctive event. It follows that if a person with a mental illness were to behave in a negative way, this might qualify as a doubly

distinctive event vulnerable to an illusory correlation effect. In this example, even if an individual had no preconceptions regarding the behavior of mentally ill people, the distinctiveness of the observation of the two events in conjunction would be enough to associate the group with the behavior in the individual's mind.

The current research expanded on a traditional illusory correlation paradigm as outlined in Hamilton and Gifford (1976). Half of the conditions included positive and nonviolent negative behavioral statements and half of the conditions included positive and violent negative behavioral statements. Using a ratio of 18:8 positive-negative behavioral statements, four of the conditions (half) presented the group in which all members had been "diagnosed with a mental illness" as the majority group and four of the conditions (half) presented an "other group" as the majority group. Each of the groups was also represented as the minority group in a proportionate number of conditions using a ratio of 9:4 positive-negative behavioral statements. The frequency of behaviors was different for majority and minority groups, however the ratio of positive-negative behavioral statements was the same across groups. The hypothesis is such that the illusory correlation effect will be replicated in every condition and that the effect will be most pronounced when the group characterized as diagnosed with a mental illness is in the minority and described using positive and negative violent behaviors.

The experimental method required there to be a control group whose behaviors would be presented alongside those described as "diagnosed with a mental illness." Careful not to give away the purpose of the research (i.e., an examination of mental illness stigma), the control group could not be named something so simple as "those without a mental illness." Two control groups were chosen so that differences in desirability attributed to each group could be examined more thoroughly than along a single dichotomy between two social groups. The inclusion of a

second control group helped to ensure that the results of the study could not be attributed to any unknown biases of the participants relevant to a particular social group used in this study.

The control groups selected were “tobacco users” and “only children.” These groups were chosen because similar to people with mental health conditions, tobacco users and only children are not particularly uncommon social groups. Also similar to the mentally ill, tobacco users and only children might be associated with relatively unfounded and negative social stereotypes (e.g., tobacco users do not care about their health, only children are spoiled, people with mental illness are dangerous).

METHODS

Participants

One hundred and nineteen undergraduate students enrolled in the Introduction to Psychology course, Psychology 205, during the 2014-2015 academic year at Syracuse University in Syracuse, New York, served as participants for this research. All participants were at least 18 years of age. Both male and female undergraduate students participated. Students under the age of 18 were excluded from participation in this study as were students studying abroad at the time. Individuals under the age of 18 are not permitted to participate in subject pool studies.

Procedure

Students interested in participating in this study signed up through the on-line Psychology Research Participation System (SONA) maintained at Syracuse University by the Department of Psychology so that undergraduate students may gain experience with how research is conducted and contribute to departmental studies. To sign up to participate in the current study, students logged in to SONA and selected one of the available time slots for this study that were displayed. Three students were permitted to sign up for this study at each available time slot offered on-line.

A brief description of the study was displayed on SONA so that students could view background information before signing up. The study was titled “Multi-faceted Groups,” and the description of the study read as follows:

“In this research study you will see and read a series of statements describing the behaviors of members of two different social groups. Then you will answer some questions about what you were shown. You must be at least 18 years of age to participate.”

Administered through SONA, one-half of a research credit (0.5) was awarded to students who completed the study, as well as to students who signed up for the study but chose to withdraw (although none did). This research credit (0.5) was applied to partially satisfy a course requirement for Psychology 205.

Students who agreed to participate in the study were asked to sign their name and signature on the consent form. After signing a written consent form, each participant was assigned a unique participant number to be noted on his or her individual materials for the remainder of the study. All written materials, with the exception of the written consent forms, were completely anonymous. Consent forms were stored and locked in the laboratory separate from the other written materials.

Each participant next completed the Attributional Complexity Scale, disguised for research purposes as the Person Perception Questionnaire [Appendix A] (Fletcher et al., 1986). The Person Perception Questionnaire included 28 items (e.g., “I believe it is important to analyze and understand our own thinking processes,” “I think very little about the influence that other people have on my behavior”). Beneath each of the 28 items on the questionnaire was a response scale ranging from *Strongly Agree* (+3) – *Moderately Agree* (+2) – *Slightly Agree* (+1) – *Neither*

Agree nor Disagree (0) – *Slightly Disagree* (-1) – *Moderately Disagree* (-2) – *Strongly Disagree* (-3).

Half of the items on the questionnaire (i.e., items #2, 5, 6, 8, 11, 13, 16, 17, 18, 22, 23, 26, 28) were scored in reverse direction [e.g., *Strongly Agree* (-3), *Slightly Agree* (-1), *Moderately Disagree* (+2), etc.] and participants' responses to each item on the questionnaire were scored according to the aforementioned values. Each participant was given a total score based on his or her responses to the items on the questionnaire, and higher scores indicated higher attributional complexity (Fletcher et. al, 1986). This score was used as an individual baseline to rank the intricacy of participants' cognitive tendencies.

After completing the Person Perception Questionnaire, each group of participants was randomly exposed to one of eight conditions of the 2 (Minority group: People diagnosed with a mental illness or Other) X 2 (Negative behavior type: Violent or Nonviolent) X 2 (Other group type: Tobacco users or Only children) ANOVA. Participants in every condition were shown a PowerPoint presentation that included an introductory slide, a series of 39 behavioral statements (one per slide), and a final slide. The presentation was shown using a projector that displayed the presentation onto a white board facing participants in a laboratory room. At the start of each trial, the researcher read the introductory slide aloud and asked participants to follow along. The introductory slide read as follows:

“Today you will be taking part in an exercise on social cognition. You will be seeing and reading a series of statements describing the behaviors of members of two different social groups.

People participating in this study will see different sets of behaviors from different social groups. We're not going to tell you much about the groups. However, we

will tell you something: In all cases we will reveal one characteristic that all members of each group share.

Today, for example, we'll be showing you behaviors from one group in which everyone has been **diagnosed with a mental illness**, and from one group in which everyone is a(n) **tobacco user/only child**. It will be clear when you see the behaviors which group each person belongs to.

You will only be presented with the series of statements once, so do pay attention to the best of your ability."

When the researcher was finished reading the introductory slide aloud, she signaled that the experiment would begin by saying the word "begin," clicking the space bar, and manually launching the rest of the presentation. Each slide following the introductory slide was formatted to display for exactly six seconds. The researcher exited the room but kept time so that she would know when the presentation had finished in each trial.

Each of the 39 six-second slides that followed the introductory slide included one statement describing a member of one of two social groups performing either a desirable or undesirable behavior [see Appendix B and C for a list of all behaviors]. In four conditions, participants were shown statements describing one group in which all members had been diagnosed with a mental illness and one group in which all members were tobacco users. In the other four conditions, participants were shown statements describing one group in which all members had been diagnosed with a mental illness and from one group in which all members were only children.

Each series of statements included twice as many descriptions of one group than the other, and each series of statements included more desirable than undesirable behaviors. In every

condition, majority group members were described using 18 and 8 desirable and undesirable behaviors, respectively, and minority group members were described using 9 and 4 desirable and undesirable behaviors, respectively. The frequency of statements describing the two groups was unequal, but the ratio of desirable to undesirable behaviors was the same for both groups. There was no association between group membership and the desirability of behaviors although participants were provided with more information about one of the social groups than the other.

Additionally, the same set of positive behavioral statements was used to describe the majority group in every condition. Examples of positive majority group statements are, “A person with a mental illness is a loyal and trustworthy friend” or, “A tobacco user plays acoustic guitar.” Likewise, the same set of desirable behavioral statements was used to describe the minority group in every condition. An example of a positive minority group statement is, “An only child teaches a friend how to play a new card game.” Although the majority and minority group was characterized as a different social group in different conditions, the majority and minority group was characterized by the same set of positive behavioral statements in every condition.

In four of the conditions (two in which people with mental illnesses were the majority group, one in which tobacco users were the majority group, and one in which only children were the majority group), the undesirable statements described non-violent behaviors. Examples of negative non-violent majority statements are, “A person with a mental illness begs for change outside a local grocery” or, “An only child bites his/her nails.” An example of a negative non-violent minority statement is, “A tobacco user has body odor.”

In the other four conditions (again, two in which people with mental illnesses were the majority group, one in which tobacco users were the majority group, and one in which only

children were the majority group), the undesirable statements described violent behaviors. Examples of negative violent majority statements are, “A person with a mental illness enjoys getting into bar fights with strangers” or, “A tobacco user owns a handgun.” An example of a negative violent minority statement is, “An only child antagonizes house pets.” Although the majority and minority group was characterized as a different social group in different conditions, the majority and minority group was characterized by the same set of negative non-violent or negative violent behavioral statements in every condition.

The eight conditions can be summarized as follows, where “MI” refers to the group characterized as people diagnosed with a mental illness, “TU” refers to the group characterized as tobacco users, “OC” refers to the group characterized as only children, “NV” refers to non-violent undesirable behaviors and “V” refers to violent undesirable behaviors.

| Condition | Majority Group | Minority Group | Type of Undesirable Behavior |
|-----------|----------------|----------------|------------------------------|
| 1 | TU | MI | NV |
| 2 | MI | TU | V |
| 3 | MI | TU | NV |
| 4 | TU | MI | V |
| 5 | OC | MI | NV |
| 6 | MI | OC | V |
| 7 | MI | OC | NV |
| 8 | OC | MI | V |

Following the presentation of 39 behavioral statements, a final slide was displayed on the PowerPoint that read,

“END. Thank you for paying attention! Please stay seated and you will be provided with individual directions to complete your task.”

The only difference in directions [see Appendix B and C] for participants in any condition was that for participants who had been exposed to conditions five, six, seven or eight, the words **tobacco user** (“TU”) were replaced with **only child** (“OC”).

The first page of the post-task [Appendix B or C] requested that participants “Please mark next to each statement whether a **person with a mental illness** (you may write “MI”) or a **tobacco user** (you may write “TU”) performed each behavior as you read about earlier in this experiment.” Following this instruction was a list of all the behavioral statements that participants in their respective conditions had been exposed to; in other words, there were four unique sets of directions distributed throughout this experiment.

The second page of the directions [Appendix D] requested that participants “Please rate the members of **Group MI** (people with a mental illness) and **Group TU** (tobacco users), whose behaviors you read about earlier in this experiment, on this list of traits on a scale of 1 to 10 (1 being a trait exhibited “never” and 10 being a trait exhibited “often”).” Following this instruction was two sets of identical traits with two separate headings for **GROUP MI** and **GROUP TU**. The list of traits read as follows: Intelligent; Approachable; Clean; Cultured; Aggressive; Educated; Violent; Responsible; Trustworthy; Dangerous.

Ratings on the seven desirable traits of intelligence, approachability, cleanliness, cultured-ness, education, responsibility, and trustworthiness were later grouped and used to gauge participants’ perception of a group’s overall “goodness.” Ratings on the three undesirable

traits of aggressiveness, violence and dangerousness were later grouped and used to gauge participants' perception of a group's overall "badness." A disproportionate number of good traits and bad traits were listed to reflect the disproportionate number of desirable and undesirable behavioral statements presented in every experimental condition.

The third page of the directions [Appendix E] was reserved for demographic information and requested that participants "Please complete the following form with your own information. These responses will not be linked to your personal identity. No identifiable information is used in this experiment." Following this instruction, participants were prompted to record their sex (M or F), their age (in years and months), whether English was their first language (Yes/No), at what age they began speaking English fluently (if Yes to previous question), whether they were born in the United States (Yes/No), where they were born (if No to previous question), and their ethnicity (American Indian or Alaskan Native, Asian or Pacific Islander, Black/African American not of Hispanic origin, Latino/a or Hispanic, Caucasian/White not of Hispanic origin, or Other with a prompt to specify).

After completing their individual tasks, each group of participants was debriefed on the purpose and nature of this study, given the opportunity to ask any specific questions they might have about the research, and awarded their 0.5 research credit on-line through the SONA system.

RESULTS

Ratings

An analysis of variance was performed to determine whether there was a significant difference between the overall ratings assigned to each group when each group appeared in the minority. The complete design is 2 (Minority group: Diagnosed with a mental illness or Other) X 2 (Group rated: Diagnosed with a mental illness or Other) X 2 (Negative behavior type:

Nonviolent or Violent) X 2 (Other group type: Tobacco users or Only children) X 2
(Attributional Complexity: Upper bound or Lower bound).

“*MP*” is used to indicate the mean of the ratings assigned to the group diagnosed with a mental illness, and “*OTH*” is used to indicate the mean of the ratings assigned to the other group (i.e., tobacco users or only children). Ratings assigned to undesirable traits (i.e., Aggressive, Violent, and Dangerous) were reverse scored (i.e., 10 = 1, 8 = 3, 6 = 5, etc.) and combined with those assigned to desirable traits (i.e., Intelligent, Approachable, Clean, Cultured, Educated, Responsible, and Trustworthy) that were scored traditionally (i.e., 10 = 10, 8 = 8, etc.). In testing for the reliability of the overall measure created in this way, the alpha level for the control group ratings was found to be .71, and the alpha level for those diagnosed with a mental illness was .76. Combining the ratings assigned to desirable and undesirable character traits was thus justified.

The basic ANOVA test was 2 (Minority group: Diagnosed with a mental illness or Other) X 2 (Group rated: Diagnosed with a mental illness or Other). The first variable is between subjects, the second within subjects. Average desirability ratings assigned to both groups when those diagnosed with a mental illness were in the minority were $MI=5.60 \pm 1.37$, $OTH=6.72 \pm 1.35$. When those diagnosed with a mental illness were in the majority, average desirability ratings assigned to both groups were $MI=6.56 \pm 1.46$, $OTH=5.78 \pm 1.24$. In conclusion, all groups were rated more negatively when they were in the minority; the interaction was significant, $F(1,117) = 34.76$, $p < .001$, although contrary to the predictions, this effect was not stronger when the MI group was in the minority.

When negative behavior type was added as a factor to the basic ANOVA design – X 2 (Negative behavior type: Violent or Nonviolent) – there was a between-subjects main effect for negative behavior, $F(1,115) = 39.12$, $p < .001$. Overall, and not surprisingly, this affect indicates

that when the negative behaviors were violent, the groups were rated more negatively. In nonviolent conditions when those diagnosed with a mental illness were in the minority, average desirability ratings assigned to both groups were $MI=5.93 \pm 1.42$, $OTH=7.41 \pm 1.22$. When those diagnosed with a mental illness were in the majority, average desirability ratings assigned to both groups were $MI=7.21 \pm 1.27$, $OTH=6.21 \pm 1.20$. In violent conditions when those diagnosed with a mental illness were in the minority, average desirability ratings assigned to both groups were $MI=5.29 \pm 1.27$, $OTH=6.05 \pm 1.12$. When those diagnosed with a mental illness were in the majority, average desirability ratings assigned to both groups were $MI=5.91 \pm 1.34$, $OTH=5.36 \pm 1.14$. In sum, the main effect for negative behavior was not qualified by the other variables.

When other group type was added as a factor to the basic ANOVA – X 2 (Other group type: Tobacco users or Only children) – there was a two-way, within-subjects interaction that was almost significant with no main effect ($p = .074$). When tobacco users were in the minority, average desirability ratings were $MI=6.43 \pm 1.53$, $OTH=5.54 \pm 1.20$. When tobacco users were in the majority, average desirability ratings were $MI=5.78 \pm 1.29$, $OTH=6.43 \pm 1.27$. When only children were in the minority, average desirability ratings were $MI=6.69 \pm 1.40$, $OTH=6.03 \pm 1.24$. When only children were in the majority, average desirability ratings were $MI=5.43 \pm 1.44$, $OTH=6.70 \pm 1.40$. Overall, then, this effect simply reflects the finding that participants rated tobacco users more harshly than only children.

When attributional complexity was added as a factor to the basic ANOVA – X 2 (Attributional Complexity: Upper bound or Lower bound) – there were no significant main effects or interactions associated with this variable. These null findings are reflected in the cell means. For those with higher attributional complexity, when those diagnosed with a mental illness were in the minority, average desirability ratings were $MI=5.62 \pm 1.32$, $OTH=6.67 \pm 1.20$.

When those diagnosed with a mental illness were in the majority, average desirability ratings were $MI=6.67 \pm 1.36$, $OTH=6.04 \pm 1.18$. For those with lower attributional complexity, when those diagnosed with a mental illness were in the minority, average desirability ratings were $MI=5.56 \pm 1.44$, $OTH=6.76 \pm 1.50$. When those diagnosed with a mental illness were in the majority, average desirability ratings were $MI=6.43 \pm 1.57$, $OTH=5.52 \pm 1.27$.

Separate analyses of ratings were also run on the three character traits related directly to dangerousness (i.e., Aggressive, Violent, Dangerous). The pattern of means was similar to what was found when analyzing the entire set of trait ratings, but isolating only those traits related to dangerousness weakened the overall interaction between minority group type and group being rated ($p = .060$).

Memory

Participants were also requested to recall the behavioral statements attributed to both groups as they appeared in the original presentation. When those diagnosed with a mental illness were in the minority, the average recall of negative behaviors for the mentally ill group was 5.0 ± 1.94 . When the other group was in the minority, the average recall of negative behaviors for the other group was 5.59 ± 1.94 . These means are not significantly different from each other, $t(117) = .103$, $p < .001$. The average recall of positive behaviors for the mentally ill group was 10.25 ± 1.96 when the mentally ill group was in the minority, and the average recall of positive behaviors for the other group was 11.17 ± 2.82 when the other group was in the minority. These means are slightly more different from each other, $t(117) = .055$, $p < .001$. Because minority groups were actually associated with 4 negative and 9 positive behaviors, these findings indicate only that participants overestimated the frequency of the minority behaviors, regardless of behavior type.

Thus, although the illusory correlation effect was replicated with the rating data, it was not replicated with the memory data.

When differences in the recall of negative behaviors for the minority group were broken down by negative behavior type, there was a significant interaction $F(1,115) = 15.73, p < .001$. In nonviolent conditions, when those diagnosed with a mental illness were in the minority, average recall of negative behaviors was 5.79 ± 1.72 . When those diagnosed with a mental illness were in the majority, average recall of negative behaviors for the other group was 5.03 ± 1.26 . In violent conditions, when those diagnosed with a mental illness were in the minority, average recall of negative behaviors was 4.23 ± 1.85 . When those diagnosed with a mental illness were in the majority, average recall of negative behaviors for the other group was 6.13 ± 2.33 . Counter to predictions, then, distinctive violent behaviors were better remembered when they were associated with the control group, not the MI group.

Similar analyses were run to assess differences in recall for positive behaviors, but the interaction between minority group type, negative behavior type and recall of positive behaviors was insignificant.

DISCUSSION

The purpose of this research was to examine people's readiness to form an association between those diagnosed with a mental health condition and negative behavior in the absence of objective evidence for that association. This tendency was examined through exploration of the illusory correlation effect, explained in past research by the unique way in which distinctive stimuli are perceived; specifically, distinct stimuli are very memorable, and social stimuli (i.e., events, objects, or people in the environment) that are distinct in isolation are especially memorable when encountered in conjunction (Hamilton & Gifford, 1976, McArthur &

Friedman, 1980, Hamilton et al., 1985, Hamilton & Sherman, 1989, Stroessner & Plaks, 2001, and Risen et al., 2007).

The illusory correlation effect predicts that if people are provided with information about two different groups they will attribute more negative qualities to the group about which they received less information, because the doubly distinctive events (negative behaviors of the minority group) will stand out in memory. The hypothesis was that the illusory correlation effect would be replicated across all conditions and that this effect would be most pronounced when the group characterized as “diagnosed with a mental illness” was described using a lower ratio (9:4) of positive-negative behavioral statements that included negative violent behaviors. While the former element of the hypothesis was supported by this research, the latter was not.

The basic test of the hypothesis was a 2 (Minority group: Diagnosed with a mental illness or Other) X 2 (Group rated: Diagnosed with a mental illness or Other) analysis of variance. The first variable is between subjects, the second within subjects. To replicate the basic illusory correlation effect, the expected interaction is that groups will be rated more negatively when they are in the minority. That would be reflected by an interaction between the variables, and that interaction was significant. In this respect, the hypothesis was supported.

Contrary to expectations, the “rating penalty” for being in the minority was not more pronounced overall for the mentally ill group relative to the other group in the minority, nor was it more pronounced in the case of violent behaviors only. Instead, when negative behavior type (nonviolent or violent) was added as a factor to the basic analysis, there was a between-subjects main effect for negative behavior. All groups were rated more negatively overall when the negative statements included violent behavior. Also contrary to expectations, inspection of the data revealed that if anything, the basic illusory correlation effect was slightly more pronounced

for *nonviolent* behaviors (reflected in a three-way interaction that approached significance, $p = .069$). This may be because the introduction of violent behaviors caused both groups to be perceived highly negatively and overall ratings flattened out.

When other group type (tobacco users or only children) was added as a factor, there was a two-way, within-subjects interaction that was almost significant. This interaction reflects the overall finding that tobacco users were rated more negatively than only children. This effect also involves an interaction with the group being rated, because the identity of the other group did not affect how those diagnosed with a mental illness were rated in any condition. However, this effect was independent to the ones of central interest to this research. In simpler terms, this finding supports the use of tobacco users and only children as interchangeable control groups. Two control groups were chosen so that differences in desirability attributed to each group could be examined more thoroughly than along a single dichotomy between two social groups. The inclusion of a second control group helped to control for any unknown biases of the participants relevant to any of the social group identities used in this study.

When attributional complexity was added as a factor to the basic test (upper bound or lower bound), there was no significant effect on desirability ratings attributed to either group. This can perhaps be explained in part by the simplicity and frequency of the behavioral statements that participants were exposed to. Each behavioral statement was a one-sentence description of a desirable or undesirable behavior that displayed for exactly six seconds. Although participants did score in a wide range on the Attributional Complexity Scale, and indeed some had high upper bound scores that indicated a strong preference for complex explanations and intricacy in perception, it could be that the paradigm and behaviors used in this study were neither contextualized nor “real” enough to warrant much application of attributional

complexity. The frequency of behaviors and brevity with which they were displayed might have overwhelmed any opportunity for participants to think critically about potential causes or contributions to the behaviors of the groups described, and therefore there was no interaction between attributional complexity scores and desirability ratings attributed to any social group when any group appeared in the minority.

With respect to participants' recall of the behavioral statements for majority and minority groups, an unbiased participant in any condition would have attributed 18 positive behaviors to the group that appeared in the majority, 8 positive behaviors to the group that appeared in the minority, 9 negative behaviors to the group that appeared in the majority, and 4 negative behaviors to the group that appeared in the minority. On average, participants attributed 5.3 behaviors to the minority group – 5.0 when the mentally ill group was in the minority, and 5.6 when the other group was in the minority. These means are not significantly different from one another, although when the recall is broken down by negative behavior type (nonviolent or violent), there is a significant difference in recall for negative violent behavioral statements attributed to either group in the minority. In violent behavior conditions, participants attributed 4.2 negative behaviors to the mentally ill group and 6.1 negative behaviors to the other group. Contrary to the hypothesis, participants overattributed violent behaviors to the other group, not the mentally ill group.

The hypothesis predicted that the double distinctiveness of a mentally ill minority group member engaged in a negative violent behavior would be especially memorable to participants, both because of the illusory correlation effect and potential pre-existing biases against mentally ill people. Instead, participants demonstrated a significant bias as being more likely to attribute negative violent behaviors to the control group when the control group appeared in the minority.

It is possible that this effect is due in part to the perceived unexpectedness of each social group member performing a negative violent behavior, and that participants demonstrated a greater bias to recall a behavior when the group member's behaviors were most surprising or unusual to them. Past research has found that people are more likely to exhibit a recall bias when exposed to information that contradicts their expectations (Belmore & Hubbard, 1987, Stangor & McMillan, 1992). For example, perhaps participants in the current study found it more unusual when only children were engaged in negative violent behaviors than when mentally ill people were engaged in negative violent behaviors. This would help explain why the general bias was stronger toward the control group relative to the mentally ill group.

Hamilton and Gifford (1976) were the first to demonstrate the role of distinctiveness-based illusory correlations in the formation of stereotype. They exposed research participants to a series of statements including an infrequent number, but equal ratio, of positive-negative majority and minority behavioral statements and predicted that people would perceive stimulus relationships that did not actually exist. The illusory correlation effect has been widely replicated in research (Hamilton & Gifford, 1976, Hamilton et al., 1985, Hamilton & Sherman, 1989, Stroessner & Plaks, 2001, and Risen et al., 2007). The current study sought to expand on a traditional illusory correlation paradigm to include different social group identities, particularly those with mental illness, to examine people's tendency to attribute negative behavior to mentally ill people in the absence of any objective evidence for that association.

Other past research has expanded on an illusory correlation paradigm to include socially sensitive issues particularly related to gender, age, and race. In McArthur and Friedman (1980), similar to the current study, researchers employed a traditional illusory correlation paradigm and found an illusory correlation effect between minority group and negative behavior. Also similar

to the current study, the researchers requested that participants rank the desirability of the behaviors of members of different social groups on a desirability scale. However, in McArthur and Friedman's study, participants were asked how desirable they considered each behavior to be *given* that the stimulus person belonged to a given social group.

Stimulus groups who were identified as Black, old, or of the opposite sex from the participant were rated more negatively when their demographic appeared in the minority. Those who were White, young, or of the same sex as the subject were rated more positively when their demographic appeared in the minority (McArthur & Friedman, 1980). While there was no way of determining whether participants of the current study belonged to any of the social groups included (i.e., the mentally ill, tobacco users, or only children), it would be interesting to expand on the current study to examine whether participant group membership or association with any of the identities could significantly influence the biases demonstrated against any group appearing as a minority.

The current study could also be improved or expanded on if the violent behavior conditions were tailored to appear less extreme. In each violent behavior condition, participants were exposed to 13 negative violent behavioral statements total. This was perhaps overwhelming, especially as the behaviors were presented over such an abbreviated time period. Still, the inclusion of violent behaviors was important to the current study because it aimed to examine a bias against mentally ill people relevant to their association with violent social behavior. If the introduction of violent behaviors was curtailed in subsequent research, it is possible that desirability ratings assigned to each group in violent behavior conditions would not be so flattened out; therefore, the illusory correlation effect would be more pronounced. Future studies examining the effect of negative behavior type on the illusory correlation could ratio the

appearance of nonviolent to violent negative behaviors across conditions (e.g., 10:3, 8:5, 6:7 nonviolent-violent negative behaviors, etc.).

Finally, additional studies might benefit from a larger, more varied subject pool. All participants in the current research were Introduction to Psychology students at Syracuse University (SU). Students signed up for this study voluntarily using an on-line SONA database established for SU undergraduate participation in psychology research purposes. While it cannot be said with certainty that introductory psychology students might harbor increased sensitivity to mental health issues, it is likely that they have some heightened awareness of the causes and contributions to mental illness and mentally ill people's behaviors. This might also help to explain why participants of this study demonstrated a bias against the other group, not those diagnosed with a mental illness, because psychology students might find it less distinct or less unusual that mentally ill people would engage in undesirable social behaviors.

Appendix A

Person Perception Questionnaire

This questionnaire has been designed to investigate the different ways that people think about themselves and other people. The questionnaire is anonymous, so there is no need to put your name on it. There are no right or wrong answers. We are interested in your own perceptions. Please answer each question as honestly and accurately as you can by circling one of the seven possible responses, but do not spend too much time thinking about each answer.

1. I don't usually bother to analyze and explain people's behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

2. Once I have figured out a single cause for a person's behavior I don't usually go any further.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

3. I believe it is important to analyze and understand our own thinking processes.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

4. I think a lot about the influence that I have on other people's behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

5. I have found that the relationships between a person's attitudes, beliefs, and character traits are usually simple and straightforward.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

6. If I see people behaving in a really strange or unusual manner I usually put it down to the fact that they are strange or unusual people and don't bother to explain it any further.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

7. I have thought a lot about the family background and personal history of people who are close to me, in order to understand why they are the sorts of people they are.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

8. I don't enjoy getting into discussions where the causes for people's behavior are being talked over.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

9. I have found that the causes for people's behavior are usually complex rather than simple.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

10. I am very interested in understanding how my own thinking works when I make judgments about people or attach causes to their behavior.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

11. I think very little about the different ways that people influence each other.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

12. To understand a person's personality/behavior I have found it is important to know how that person's attitudes, beliefs, and character traits fit together.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

13. When I try to explain other people's behavior I concentrate on the person and don't worry too much about all the existing external factors that might be affecting them.

| | | | | | | |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|----------------|------------------|----------------|----------------------------|-------------------|---------------------|-------------------|

14. I have often found that the basic cause for a person's behavior is located far back in time.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

15. I really enjoy analyzing the reasons or causes for people's behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

16. I usually find that complicated explanations for people's behavior are confusing rather than helpful.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

17. I give little thought to how my thinking works in the process of understanding or explaining people's behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

18. I think very little about the influence that other people have on my behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

19. I have thought a lot about the way that different parts of my personality influence other parts (e.g., beliefs affecting attitudes or attitudes affecting character traits).

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

20. I think a lot about the influence that society has on other people.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

21. When I analyze a person's behavior I often find the causes form a chain that goes back in time, sometimes for years.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

22. I am not really curious about human behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

23. I prefer simple rather than complex explanations for people's behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

24. When the reasons I give for my own behavior are different from someone else's, this often makes me think about the thinking processes that lead to my explanations.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

25. I believe that to understand a person you need to understand the people who that person has close contact with.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

26. I tend to take people's behavior at face value and not worry about the inner causes for their behavior.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

27. I think a lot about the influence that society has on my behavior and personality.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

28. I have thought very little about my own family background and personal history in order to understand why I am the sort of person I am.

| | | | | | | |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|
| Strongly Agree | Moderately Agree | Slightly Agree | Neither Agree nor Disagree | Slightly Disagree | Moderately Disagree | Strongly Disagree |
|-------------------|---------------------|-------------------|-------------------------------|----------------------|------------------------|----------------------|

Appendix B [Example nonviolent condition]

Please mark next to each statement whether a **person with a mental illness** (you may write "MI") or a **tobacco user** (you may write "TU") performed each behavior as you read about earlier in this experiment.

___ is a member of a book club
 ___ is a loyal and trustworthy friend

- has excellent personal hygiene
- takes photographs at family events
- sleeps with the lights on
- volunteers at a local animal shelter
- enjoys cooking
- is consistently late to work
- buys lunch for a co-worker
- is well-organized
- holds the door open for other individuals
- bites his/her nails
- has a driver's license
- has never defaulted on a credit card statement
- teaches his/herself a second language
- lives with supportive roommates
- avoids alcohol consumption
- plays acoustic guitar
- practices meditation
- recycles
- has a suspended driver's license
- waves at a pedestrian on the street
- consumes alcohol heavily and regularly
- brags often
- is enrolled at a university
- is easily distressed
- helps an elderly woman carry her grocery bags
- is a Parent Teacher Association (PTA) member
- begins a weekly exercise regimen
- keeps a journal
- repeatedly fails to maintain a monthly budget
- avoids eye contact during public/one-on-one interaction
- teaches a friend how to play a new card game
- has a loving relationship with his/her parents
- begs for change outside a local grocery
- is in a relationship with a significant other
- saves a portion of every paycheck for a new car
- has body odor
- compulsively plays with his/her hair

Appendix C [Example violent condition]

Please mark next to each statement whether a **person with a mental illness** (you may write "MI") or an **only child** (you may write "OC") performed each behavior as you read about earlier in this experiment.

- is a member of a book club
- is a loyal and trustworthy friend

- ___ has excellent personal hygiene
- ___ takes photographs at family events
- ___ storms out of a restaurant and flips a table after waiting too long for service
- ___ volunteers at a local animal shelter
- ___ enjoys cooking
- ___ kicks a puppy on the street for barking
- ___ buys lunch for a co-worker
- ___ is well-organized
- ___ holds the door open for other individuals
- ___ verbally abuses a co-worker
- ___ has a driver's license
- ___ has never defaulted on a credit card statement
- ___ teaches his/herself a second language
- ___ lives with supportive roommates
- ___ avoids alcohol consumption
- ___ plays acoustic guitar
- ___ practices meditation
- ___ recycles
- ___ enjoys getting into bar fights with strangers
- ___ waves at a pedestrian on the street
- ___ owns a handgun
- ___ fired from a previous job for provoking an altercation with a co-worker
- ___ is enrolled at a university
- ___ charged for domestic violence
- ___ helps an elderly woman carry her grocery bags
- ___ is a Parent Teacher Association (PTA) member
- ___ begins a weekly exercise regimen
- ___ keeps a journal
- ___ engages in acts of vandalism
- ___ shoves a stranger forward in the crowded concessions line at an athletic event
- ___ teaches a friend how to play a new card game
- ___ has a loving relationship with his/her parents
- ___ commits armed robbery
- ___ is in a relationship with a significant other
- ___ saves a portion of every paycheck for a new car
- ___ antagonizes house pets
- ___ operates a vehicle while intoxicated

Appendix D

Please rate the members of **Group MI** (people with a mental illness) and **Group TU** (tobacco users), whose behaviors you read about earlier in this experiment, on this list of traits on a scale of 1 to 10 (1 being a trait exhibited “never” and 10 being a trait exhibited “often”).

GROUP MI

- Intelligent
- Approachable
- Clean
- Cultured
- Aggressive
- Educated
- Violent
- Responsible
- Trustworthy
- Dangerous

GROUP TU

- Intelligent
- Approachable
- Clean
- Cultured
- Aggressive
- Educated
- Violent
- Responsible
- Trustworthy
- Dangerous

Appendix E

Please complete the following form with your own information. These responses will not be linked to your personal identity. No identifiable information is used in this experiment.

Sex (circle one)

M F

Age (years and months) _____

Is English your first language? Yes No

If English is NOT your first language, at what age did you begin speaking English fluently? _____

Were you born in the United States? Yes No

If you were NOT born in the United States, where were you born? _____

Please indicate your ethnicity by placing a check next to the appropriate description.

American Indian or Alaskan Native

Asian or Pacific Islander

Black/African American, not of Hispanic origin

Latino/a or Hispanic

Caucasian/White, not of Hispanic origin

Other (please specify): _____

References

- Belmore, S.M. & Hubbard, M.L. (1987). The role of advance expectancies in person memory. *Journal of Personality and Social Psychology* 53(1), pp. 61-70.
- Byrne, P. (2000). Stigma of mental illness and ways of diminishing it. *Advances in Psychiatric Treatment* 6, pp. 65-72.
- Fletcher, G.J.O., Danilovics, P., Fernandez, G., Peterson, D., and Reeder, G.D. (1986). Attributional complexity: An individual difference measure. *Journal of Personality and Social Psychology* 51(4), pp. 875-884.
- Frank, R.G. & Glied, S.A. (2006). *Better but not well: Mental health in the United States since 1950*. Baltimore, MD: John Hopkins University Press.
- Hamilton, D.L. & Gifford, R.K. (1976). Illusory correlation in interpersonal perception: A cognitive basis of stereotypic judgments. *Journal of Experimental Social Psychology* 12, pp. 392-407.
- Hamilton, D.L., Dugan, P.M. & Trolie, T.K. (1985). The formation of stereotypic beliefs: Further evidence for distinctiveness-based illusory correlations. *Journal of Personality and Social Psychology* 48, pp. 5-17.
- Hamilton, D.L. & Sherman, S.J. (1989). Illusory correlations: Implications for stereotype theory and research. In Bar-Tal, D., Graumann, C.F., Kruglanski, A.W., & Stroebe, W. (Eds.), pp. 59-82, *Stereotyping and prejudice. Changing conceptions*. Springer-Verlag: New York.
- Langer, E. J. & Abelson, R. P. (1974). A patient by any other name...clinician group difference in labeling bias. *Journal of Consulting and Clinical Psychology* 42(1), pp. 4-9.

- Levin, A. (2001). Violence and mental illness: Media keep myths alive. *Psychiatric News* 36(9), n. pag.
- Link, B.G., Phelan, J.C., Bresnahan, M., Stueve, A. & Pescosolido, B.A. (1999). Public conceptions of mental illness: Labels, causes, dangerousness, and social distance. *American Journal of Public Health* 89(9), pp. 1328-1333.
- McArthur, L.A. & Friedman, S.A. (1980). Illusory correlation in impression formation: Variation in the shared distinctiveness effect as a function of the distinctive person's age, race, and sex. *Journal of Personality and Social Psychology* 39(4), pp. 615-624.
- Ottati, V., Bodenhausen, G. V. & Newman, L. S. (n.d.). Social psychological models of mental illness stigma. In V. Ottati (Ed.), pp. 99-119.
- Ratliff, K.A. & Nosek, B.A. (2010). Creating distinct implicit and explicit attitudes with an illusory correlation paradigm. *Journal of Experimental Social Psychology* 46(5), pp. 721-728.
- Risen, J.L., Gilovich, T. & Dunning, D. (2007). One-shot illusory correlations and stereotype formation. *Personality and Social Psychology Bulletin* 33, pp. 1492-1502.
- Rothman, D. (1971). *The discovery of the asylum: Social order and disorder in the new republic*. Piscataway, NJ: Aldine Transaction.
- Stangor, C. & McMillian, D. (1992). Memory for expectancy-congruent and expectancy-incongruent information: A review of the social and social developmental literatures. *Psychology Bulletin* 111(1), pp. 42-61.

Stroessner, S.J. & Plaks, J.E. (2001). Illusory correlation and stereotype formation: Tracing the arc of research over a quarter century. In G.B. Moskowitz (Ed.), *Cognitive social psychology: The Princeton symposium on the legacy and future of social cognition*, pp. 247-259. Mahwah, NJ: Erlbaum.