Psi Chi
Journal of Undergraduate Research

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About Psi Chi
Psi Chi is the National Honor Society in Psychology, founded in 1929 for the purposes of encouraging, stimulating, and maintaining excellence in scholarship, and advancing the science of psychology. Membership is open to graduate and undergraduate men and women who are making the study of psychology one of their major interests and who meet the minimum qualifications. Psi Chi is a member of the Association of College Honor Societies (ACHS) and is an affiliate of the American Psychological Association (APA) and the American Psychological Society (APS). Psi Chi’s sister honor society is Psi Beta, the national honor society in psychology for community and junior colleges.
Psi Chi functions as a federation of chapters located at over 1,000 senior colleges and universities in the U.S. and Canada. The Psi Chi National Office is located in Chattanooga, Tennessee. A National Council, composed of psychologists who are Psi Chi members and who are elected by the chapters, guides the affairs of the organization and sets policy with the approval of the chapters.
Psi Chi serves two major goals—one immediate and visibly rewarding to the individual member, the other slower and more difficult to accomplish, but offering greater rewards in the long run. The first of these is the Society’s obligation to provide academic recognition to its inductees by the mere fact of membership. The second goal is the obligation of each of the Society’s local chapters to nurture the spark of that accomplishment by offering a climate congenial to its creative development. For example, the chapters make active attempts to nourish and stimulate professional growth through programs designed to augment and enhance the regular curriculum and to provide practical experience and fellowship through affiliation with the chapter. In addition, the national organization provides programs to help achieve these goals, including national and regional conventions held annually in conjunction with the psychological associations, research award and grant competitions, certificate recognition programs, national and regional chapter awards, and national service projects.

Journal Purpose Statement
The twofold purpose of the Psi Chi Journal of Undergraduate Research is to foster and reward the scholarly efforts of undergraduate psychology students as well as to provide them with a valuable learning experience. The articles published in this journal represent primarily the work of the undergraduate student(s). Faculty supervisors, who deserve recognition, are identified by an asterisk next to their name or on a separate byline.

Since the articles in this journal are primarily the work of undergraduate students, the reader should bear in mind that:
1. The studies are possibly less complex in design, scope, or sampling than professional publications and the studies are not limited to significant findings. The basis for accepting papers for publication is the agreement among three professional reviewers that the project, hypothesis, and design are well researched and conceived for someone with an undergraduate level of competence and experience.

Instructions for Contributors
The Psi Chi Journal of Undergraduate Research encourages undergraduate students to submit manuscripts for consideration. Submissions are accepted for review on an ongoing basis. Although manuscripts are limited to empirical research, they may cover any topical area in the psychological sciences.
1. The primary author of a submitted manuscript must be an undergraduate student who is a member of Psi Chi. Manuscripts from graduate students will be accepted only if the work was completed as an undergraduate student. Additional authors other than the primary author may include non-Psi Chi students as well as the faculty mentor or supervisor. Membership verification information (member ID number) for the primary author must be included.
2. Only original manuscripts (not published or accepted for publication elsewhere) will be accepted.
3. All manuscripts must be prepared according to the Publication Manual of the American Psychological Association (5th ed.).
4. What to submit:
   a. A Microsoft® Word electronic copy of the complete manuscript with figures, tables, and charts generated in either Word or Excel. Any scanned images or illustrations must be at least 600 dpi resolution. Should you desire a masked review, make sure that identifying names, affiliations, etc. appear only on the title page and nowhere else on the manuscript (i.e., manuscripts should be reasonably free of clues to the identity of the authors). Footnotes that identify the author(s) should appear on a separate page. You must request masked review.
   b. An email address so that receipt of your manuscript can be acknowledged.
   c. A sponsoring statement from the faculty supervisor who attests:
      1) that the research adhered to APA ethical standards;
      2) that the supervisor has read and critiqued the manuscript on content, method, APA style, grammar, and overall presentation; and
      3) that the planning, execution, and writing of the manuscript represent primarily the work of the undergraduate student.

Submit all electronic files to:
Dr. Christopher Koch, Editor, journal@psichi.org
Stephen F. Davis received his BA and MA degrees from Southern Methodist University and his PhD from Texas Christian University. In 2007 he was awarded the honorary Doctor of Humane Letters degree by Morningside College.

His first teaching position was at King College (Bristol, TN). Subsequently, he taught at Austin Peay State University (Clarksville, TN), and Emporia State University (Emporia, KS). He is Emeritus Professor at Emporia State University. In 2002-2003 he was selected to serve as the Knapp Distinguished Professor of Arts and Sciences at the University of San Diego. Currently he serves as Visiting Distinguished Professor of Psychology at Texas Wesleyan University (Ft. Worth) and Distinguished Guest Professor at Morningside College (Sioux City, IA).

Dr. Davis’s research interests include academic dishonesty, student professional development, student responsibility, conditioned taste aversion learning, and olfactory communication in animal maze learning. Since 1966 he has published over 300 articles, 31 books, and presented over 900 professional papers; the vast majority of these publications and presentations include student coauthors. Among his books are a number of textbooks and references such as The Psychologist as Detective: An Introduction to Conducting Research in Psychology (with Randolph A. Smith), Psychology (with Joseph J. Palladino), the Handbook of the Teaching of Psychology (with William Buskist), and 21st Century Psychology: A Reference Handbook (also with William Buskist).

Dr. Davis has served as the president of APA Division 2 (the Society for the Teaching of Psychology), the Southern Society for Philosophy and Psychology, the Southwestern Psychological Association, and Psi Chi (the National Honor Society in Psychology). In 1987 Dr. Davis received the first annual Psi Chi/Florence L. Denmark National Faculty Advisor Award. In 1988 he received the American Psychological Foundation Distinguished Teaching in Psychology Award, and in 1989 he received the APA Division 2 Teaching Excellence Award. Dr. Davis is a fellow of APA Divisions 1 (General), 2 (Society for the Teaching of Psychology), and 6 (Behavioral Neuroscience and Comparative Psychology).

How did you become interested in psychology?
I seem to have always had an interest in psychology and as high school graduation approached, I knew that I would be a psychology major when I enrolled at Southern Methodist University (SMU) that fall. Even
though I was going to be a psychology major, my passion for the field had yet to develop.

I was not an especially diligent student during my high school years; my senior annual suggests that I would make my mark in the world of drag racing and auto mechanics. My fascination with building and racing cars persisted into my freshman and sophomore years at SMU. These activities, plus the “responsibilities” associated with being a fraternity member, were not especially supportive of academics. In short, I came very close to flunking out of SMU.

The summer following my sophomore year at SMU was a turning point for my career in psychology. I traveled to Wisconsin to visit relatives, took a job, and stayed the entire summer. My summer job was as a member of the dish-washing crew at a summer conference center. All of the employees were college students; many of them were psychology majors. Even though I was a psychology major and had taken several psychology courses, my co-workers that summer spoke something akin to a foreign language when they talked about psychology! My errant study habits, missed classes, and frequent “dozing” finally caught up with me. I came face to face with the realization that my future in this field was in serious jeopardy. I returned to SMU with a new sense of purpose and academic dedication. The result, to the amazement of my teachers, was the first in an unbroken series of straight A semesters and a passion for psychology that has not diminished to this day.

What did he or she do that was particularly meaningful for your development as a psychologist?
I would be remiss not to mention the support, guidance, and encouragement of three SMU psychology faculty during my final five semesters as an undergraduate and during my MA program. (Yes, my bad freshman and sophomore grades added an extra semester to my program.) Virginia Chancey, Al North, and Jack Strange provided encouragement, gave support, and opened more than one door of opportunity as I struggled to regain academic credibility. They showed me crystal clarity that they truly cared for their students and that teaching was both fun and very rewarding. In short, they taught me that psychologists can be scientists, teachers, and real people.

How much of your academic lineage or “family tree” do you know?
Yes, I have traced my psychological lineage from both my master’s thesis director and my doctoral dissertation director. I can trace my heritage back to William James on one branch and to Wilhelm Wundt on the other ranch.

Do you have any advice for maximizing one’s graduate school experience?
There are several things that students can do to “survive and thrive” in graduate school. Here are several of the more important things that students can do. (Thanks to my friend, Linda Skitka, former Psi Chi Midwest Regional Vice President, for initially suggesting several of the following.)

1. Know what you are getting yourself in for; be prepared by having a clear definition of your goals. Know why you are there.
2. Learn time management skills; you will need them.
3. Learn to make and keep lists. They can save your life.
4. Be sure that you have the motivation and drive to deal with the demands of graduate school. Some people call this attribute “fire-in-the-belly.” Matt Huss (Creighton University) calls it “eye of the tiger.” Whatever you choose to call it, you must have it.
5. In addition to having a faculty mentor, you need to develop good relationships with advanced graduate students. They have been down the trail you are on and can tell you what to expect.
6. Keep in mind that all students in your graduate program have outstanding abilities; they would not be there if they were not talented. However, also keep in mind that you also have outstanding abilities, otherwise you would not be in the program. In short, don’t beat yourself up with social comparisons.

What is your source or inspiration for research ideas?
After completing my PhD at Texas Christian University (TCU), I accepted a teaching position at King College (Bristol, TN). Part of my duties at King College included developing a psychology laboratory. All went well and soon we had rats running through mazes and pressing lever in operant-conditioning chambers. Three years later I accepted a position at Austin Peay State University (APSU; Clarksville, TN). Once again, my duties included establishing a psychology laboratory. Soon my students and I were investigating the olfactory communication in animal maze learning, and I could see myself pursuing this topic for many years to come. However, change was soon to completely change my research involvement.

The impetus for this change originated with the APSU students. Numerous students who visited my office started proposing some of the “strangest” (at least to an old-time rat runner) research ideas I had ever
heard of. Thankfully, I had the presence of mind to give these unorthodox research ideas a fair hearing and we began to follow through on some of them. So, nearly 40 years ago, I found my research focus beginning to shift. I came to the realization that my laboratory and research interests did not exist for any specific type of research; they existed for the training of quality students. In short, the vast majority of the research projects that my students and I have conducted over the years originated as an idea that a student proposed.

Do you have any tips for developing a successful research program?
A description of my research program appeared in a book chapter (Davis, 2007). Hopefully, a few excerpts from that chapter will give you an idea of how my research program operates. Please feel free to use any or all of these ideas in your own research endeavors.

I call my model the “junior colleague model” because the research ideas typically come from the students and because the students are always growing and developing in their ability to add meaningfully to a project(s). Under this model, we conduct research on a year-round basis; the inception and completion of projects are not linked to the beginning or end of the academic term. Moreover, I offer students the opportunity to enroll for academic credit (1-3 hours as determined by the student and myself) during a maximum of two semesters. Because we conducted research on a year-round basis, new students are able to join the “lab group” (as the students call it) at different times during the year.

I am a firm believer in peer teaching (McKeachie, 2002) and use it extensively with the lab group. The more experienced student researchers act as mentors to the neophytes. As students complete projects, they undertake new ones that involve increased involvement, input, and responsibility. I have found that my student researchers are capable of making significant contributions to the design and implementation of an experiment by the time they are working on their second or third project.

You recently finished editing 21st Century Psychology: A Reference Handbook with Bill Buskist. What was your vision for this handbook? Did working on this project influence your perspective on psychology?
Our purpose in developing 21st Century Psychology: A Reference Handbook was to provide undergraduate psychology majors (and beginning graduate students) with an authoritative reference source that would serve their research needs with more detailed information than an encyclopedia but not as much jargon, detail, or density as a journal article or a chapter in a research handbook. We envisioned that students would use 21st Century Psychology in several ways, for instance to get an initial foothold on a topic in preparing term papers, to assist in preparing for the GRE, to select a topic for a senior thesis or their own personal research, and to consult in determining directions they might wish to take in pursuing a graduate degree.

Reading and editing the 104 chapters that comprise this two-volume set gave me a clear view of the great breadth and depth of the contemporary field of psychology. Psychology is a large, all-encompassing discipline and I believe that all psychologists need to stand back from their specialty area from time to time and look at the big picture as it currently exists. Additionally, working on this project reaffirmed my faith in the excitement that is at the core of our field. To me psychology is the most exciting field of study; it asks and attempts to answer the most intriguing questions that I can imagine.

What is psychology’s biggest problem today?
I believe that narrow specialization and a lack of unity are the biggest problems currently facing psychology. Gone are the days when the contemporary “giants,” such as B.F. Skinner and Carl Rogers, were instantly recognized by all psychology students and faculty. In some respects, narrow specialization and focus may not be all bad. Without question, exciting advances are occurring in all areas of our field.

On the other hand, unless psychology students are taught the importance of developing/having a comprehensive view of the field, it is likely that these current, exciting developments will become isolated from each other. The result easily could be that we fail to ask big questions and lose sight of the richness and complexity of the total organism.

Where is psychology as field headed? What will be the most important areas of psychological research in the future?
I believe that the “hot” research areas in the future will be biological psychology/neuropsychology, evolutionary psychology, therapy, and interpersonal relations.

What is the biggest area(s) of application for the psychology?
Although the application of psychology continues to grow at an unprecedented rate, I believe that the application of psychology in the areas of education, international terrorism, therapy, and human performance in extreme environments will lead the way.
Are there any social issues that psychology should address?
Within our own country there are signs that we are rapidly becoming a nation of “haves” and “have nots.” I believe that psychology will have to help deal with the social issues this situation will spawn.

Although recent years have heralded in numerous advances in communications technology, there are signs that we are growing more isolated from each other. I believe that this is another social issue that will impact psychology.

Although you retired from university life, you remain extremely active in psychology. Looking back over your career, what advice can you give upcoming psychologists about sustaining a long and productive career in psychology?
It may help you put my comments in better perspective if you understand what I mean by “retired.” For me “retirement” simply means that I am in complete control of my time; I can decide what and when I teach, pick and choose the projects I undertake, and so forth.

Now, concerning advice for upcoming psychologists, I believe there are three keys to sustaining a long and productive goal as a teacher and researcher in the field of psychology.

1. You must truly have a love affair with your discipline. Anything less will result in you “going at 3:00 PM to water the tomatoes.” Also, you need to realize that you did not choose psychology because of the high pay; monetary riches are to be found elsewhere.

2. Your love affair must be passionate. You need to keep the fire-in-the-belly (eye of the tiger) that propelled you through your graduate program alive and well throughout your career.

3. Never lose sight of the fact that psychology “Teachers must be willing to work for intangible rewards that may not come until many years after students graduate, which gives new meaning to the ‘delay of reinforcement gradient.’ …you must learn to be patient with your students and especially with yourself” (Brewer, 2002)

Reference
The “Skinny” on Coffee Drinkers: Gender Differences in Healthy Beverage Choices

Rachel L. Osborne
Braden D. Ackley
Traci A. Giuliano
Southwestern University

The goal of the present study was to explore the relationship between gender and health-conscious beverage decisions. Based on the notion that females are generally more preoccupied with their health, it was hypothesized that females would be more likely than would males to order a healthy beverage than an unhealthy beverage. To explore this relationship, a naturalistic observational study was conducted in a popular coffee shop in Texas, and the drink orders of 96 patrons (34 males, 62 females) were classified as either healthy or unhealthy. As predicted, the results revealed a relationship between participants’ orders and their gender, such that females (relative to males) were significantly likely to order the healthy version of a beverage. These findings suggest that health-food advertising may be reaching a primarily female population.

From television commercials to self-help books and food packages to restaurant menus, the promotion of healthy or “diet friendly” food is endless making it evident that society is preoccupied with what it consumes. Although a majority of people still consider food consumption to be a source of enjoyment in their lives, research affirms that food also constitutes a major source of anxiety (Rozin, Bauer, & Catanese, 2003). This apprehension toward food consumption is largely influenced by the alleged impact of food on one’s health and weight (Aruguete, Yates, & Edman, 2006; Rozin et al., 2003).

Indeed, research has shown that attitudes toward food vary a great deal between individuals (Rozin et al., 2003), and that such variation is mediated by a multitude of demographic characteristics, including race, ethnicity, religion, and even geographic location (Aruguete et al., 2006; Rozin et al., 2003). A vast amount of research concludes, however, that gender is the leading predictor of food perceptions and eating behavior (Aruguete et al., 2006; Rozin et al., 2003). Consequently, much empirical attention has been directed to gender differences in food perceptions, attitudes toward food, and food-related behaviors (e.g., Aruguete et al., 2006; Rozin et al., 2003; Wardle et al., 2004).

One fundamental source of variation between male and female individuals is health attitude (Rozin et al., 2003; Wardle et al., 2004). Specifically, many recent studies have confirmed that men place a lesser degree of importance on healthy eating than do women (Aruguete et al., 2006; Wardle et al., 2004). For instance, Wardle et al. (2004) reported that in comparison to women, men believe that consuming low-fat, reduced-sodium, and high-fiber food products is less important to their health. In other words, they found that men are less likely to acknowledge a relationship between their food consumption and physical health. In a similar vein, Rozin et al. (2003) reported that although both men and women seem to recognize a strong connection between diet and health (e.g., cancer and heart disease), women’s perception of the diet-health relationship is significantly stronger than is men’s.

Interestingly, the relative health concerns of men and women are evident in their food associations (Aruguete et al., 2006; Rozin et al., 2003). A particularly salient example is the Rozin et al. (2003) finding that women associate the stimulus term heavy cream with the word unhealthy, whereas men associate the term with the

Author’s Note. The researchers thank Emily Travis for her assistance in generating ideas for the study and in writing the manuscript. The researchers would also like to thank two anonymous peer reviewers for their help in revision.
word *whipped*. Thus, they found that women and men possess different manners of thinking about food, such that women are more likely than men to perceive food as determinant of their health. In other words, women tend to employ health schemas within the context of food (Rozin et al., 2003).

Most importantly, these gender differences in health attitude are manifested in male and female food consumption, specifically in the domains of dieting and restrictive eating (Aruguete et al., 2006; Wardle et al., 2004). For example, numerous empirical studies have concluded that dieting is more common among women than among men (Aruguete et al., 2006; Rozin et al., 2003). Men also eat more frequently at fast food restaurants, which are typical venues of unhealthy eating (Aruguete et al., 2006). Although it has been shown that both men and women consume diet products (such as foods low in fat, sugar, or salt), women exhibit a greater tendency to eat such products (Rozin et al., 2003). Wardle et al.’s (2004) finding that gender-related food consumption is present internationally further substantiates the universal difference between male and female eating behavior. This discrepancy between genders is logically explained by the aforementioned differences in health concerns. In fact, these factors are so strong that controlling for both dieting and health concerns dramatically decreases the difference in food consumption between men and women (Wardle et al., 2004).

The studies reviewed thus far indicate that women consume healthier food than do men and that the difference can be explained by women’s greater concern for improving health and managing weight (Alexander & Tupper, 1995). Unfortunately, most of the findings in this area are limited in their generalizability, with participant groups consisting of college students or individuals of high socioeconomic status (e.g., Aruguete et al., 2006; Wardle et al., 2004). As such, further investigation is needed before these conclusions about gender-related food consumption can be extended to all individuals. Importantly, the bulk of recent literature also focuses primarily on the consumption of solid food items (e.g., fruit, vegetables, bread, candy bars), but the realm of drinks to date has received little empirical attention (Rozin et al., 2003; Wardle et al., 2004). Moreover, most of the previous research has relied on self-report methods to measure the behavior and thoughts of participants, and thus the participants were susceptible to a social desirability response bias. In response to the lack of direct empirical observations, the present study pursued a naturalistic observational approach to data collection. Additionally, past research has typically not explored food consumption within a public dining environment, such as a restaurant (Rozin et al., 2003; Wardle et al., 2004). We assumed that a public setting would be a more valid measure of the consumption habits of men and women given that a public environment should reinforce females’ health concerns and their tendencies to order a healthy item.

The goal of the present study was to explore the relationship between gender and health-conscious behavior. A naturalistic observational approach was used to investigate male and female beverage choices at a popular coffee shop in a Texas community. This venue offered many of its regular menu items in healthier versions that incorporated nonfat milk, sugar-free syrup, or simply a lighter recipe. Based on the research to date (e.g., Aruguete et al., 2006; Rozin et al., 2003; Wardle et al., 2004), it was predicted that there would be a significant relationship between gender and healthy consumption. Specifically, it was hypothesized that females would have a greater tendency than would males to order a healthy version of a drink rather than the unhealthy version.

**Method**

**Participants**

Participants included 34 male and 62 female patrons who were unobtrusively observed at a popular coffee shop in central Texas. Participants were approximately 15 years of age and older. Other demographic characteristics (e.g., socioeconomic status, race, and ethnicity) were not taken into account due to the difficulty of making accurate judgments based on observation alone.

**Design**

As part of a 2 x 2 categorical design, patrons of a coffee shop were observed while placing a drink order, and each individual’s gender and beverage order was recorded. Beverage orders were classified as either healthy or unhealthy. A “healthy” beverage was one that contained at least one healthy modifier, such as the substitution of nonfat milk for regular milk or the substitution of sugar-free syrup for regular syrup (e.g., a nonfat mocha latte or a sugar-free cappuccino). Additionally, any menu item that was ordered in an overall lighter version (e.g., a light caramel frappuccino) was defined as healthy. In the coffee shop, all modified drinks were identified by their respective labels: *nonfat*, *sugar-free*, and *light*. Note that any drink order containing more than one modifier (e.g., a nonfat sugar-free latte) also received the designation of healthy. An “unhealthy” beverage was one that was offered in a healthier version but that was ordered without any of the modifiers.

**Procedure**

The 96 observations were made in a single Texas coffee shop on two different days. On both days the observa-
tions occurred during the late hours of the morning due to the high influx of patrons at this time of day. Participants were observed from a dining table inside the restaurant, and the table was closest in proximity to the stations where customers placed and retrieved orders. The observation of a participant began when he or she stepped up to the cashier’s counter to place an order. First, the gender of the patron was recorded. Next, after listening to the patron verbalize his or her drink order to an employee at the cashier’s station, the drink order was recorded as either healthy or unhealthy. However, if the verbal order was inaudible or unclear, the identity of the order was later determined by observing the drink-retrieval station. Here, the barista verbally announced the patron’s order and the order was recorded. Only those orders that were clearly heard and discernable were included in the study; all others were excluded to prevent the loss of reliability caused by inaccurate recording of patrons’ orders.

Several other criteria warranted the exclusion of a patron and his or her order from being recorded. First, because the current study was concerned only with beverage orders, all orders that lacked a beverage item were excluded. Next, all patrons were excluded from observation whose beverage orders were not offered in a healthy version. For example, all coffee orders were excluded because a healthy version of coffee was not available. Finally, in order to avoid the ambiguity of who a drink was intended for, only those individuals who ordered a single beverage item were included in the observations (i.e., a customer ordering more than one beverage may have intended one for a family or friend). Overall, these exclusions served to eliminate sources of error variance that could have potentially masked the relationship between gender and beverage choice.

In the present study, no formal steps were taken to ensure and to measure the reliability of the observations. The observations were made by a single researcher, and due to the unobtrusive nature of the study, the customers and employees of the coffee shop were not asked to identify the orders. Despite the absence of a formal procedure for maintaining reliability, several steps were taken to increase the reliability of the observations. For instance, prior to beginning the study, the researchers spent several hours making and recording preliminary observations on a variety of variables related to customer’s orders, which included the variables of the current study: customer gender and healthiness of the customer’s beverage. After this period of practice observations, it was decided that the most effective and reliable method of recording healthy and unhealthy beverage orders was the method used here. Additionally, all observations were double-checked prior to being recorded, and the majority of the beverage orders were confirmed by listening to both the patron and the barista verbalize the order.

**Results**

A chi-square test of independence revealed a significant relationship between gender and drink choice, $\chi^2 (1, N = 96) = 10.60, p < .05$. As predicted, males were more likely to order the standard, unhealthy version of a drink (86.50%) than the healthy version (13.50%), whereas females were somewhat more likely to order the healthy version (51.61%) compared to the unhealthy version (48.39%). Figure 1 shows the frequencies of healthy and unhealthy drinks ordered by participants. As shown in the figure, the proportion of males ordering an unhealthy beverage dramatically overshadowed the proportion ordering a healthy beverage, and females had a slight tendency to order the healthy rather than the unhealthy beverage.

**Discussion**

The findings of the current study substantiate the original hypothesis that gender is related to the healthiness of one’s beverage choice. In fact, the gender difference was pronounced, with females being nearly three times more likely than males to order a healthy alternative of a beverage. Thus, our study confirms that relative to males, females tend to be healthier consumers and to make healthier decisions. This marked gender difference in healthy consumption is strongly supported by the findings of previous research. For instance, research has confirmed that men eat at fast food restaurants more often than women (Aruguete et al., 2006). Males are also less prone to incorporate reduced-fat products into their diets (Alexander & Tepper, 1995). More importantly, the current study not only substantiated...

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1 Due to the nature of the study, the observations of customer’s beverage orders were not made according to formal measures of reliability. The observations were made by two different researchers at various times of day, in which each researcher was unaccompanied by the other during the time of observation. As such, the accuracy of each researcher’s observation was not able to be verified by comparing the observation to that of the other researcher. However, the two researchers making observations had completed several hours of preliminary observation of customers’ behavior in the coffee shop. After observing and recording information about several variables, the authors decided to investigate the variables in the current study. Following this preliminary period of observation, the researchers devised a set of criteria that determined which beverages were to be included in the observations, and most importantly, how to classify the beverages as unhealthy or healthy. For instance, all healthy beverages were those that were specified by the customer to be “light,” “nonfat,” or “sugar-free,” and unhealthy beverages included all beverages that did not contain this healthy modifier. Each observation was double-checked by the researcher to ensure reliability, and the identity of many beverages was confirmed by both listening to the customer verbalize the order at the cashier’s station and by listening to the barista announce the order at the beverage retrieval station.
other research but also expanded previous findings about the gender-health relationship. That is, whereas the bulk of past research primarily investigated solid food products (Rozin et al., 2003; Wardle et al., 2004), the current study confirms that gender-related food consumption generalizes to the realm of beverages. Surprisingly, although women’s beverage choices were healthier than those of men, women did not strongly favor a particular type of beverage; that is, they were almost equally likely to order a healthy and unhealthy beverage. This interesting finding may indicate that about half of women are not concerned with eating healthy, or at least are not concerned with presenting themselves as health conscious individuals. Perhaps the presence of acquaintances in the coffee shop was a contributing factor to women’s beverage choice. For instance, women who came to the shop with female friends or coworkers may have felt inclined to present themselves as health or body conscious and therefore ordered the healthy version of the beverage; on the other hand, it seems plausible that women who came to the shop alone or with one or more men may have felt less pressure to appear health conscious and thus opted for the traditional, unhealthy version of a beverage. As another explanation, it seems likely that a number of the women (perhaps half) were unaware that the regular beverages were offered in a healthier, diet-friendly version.

The apparent relationship between gender and consumption habits may be accounted for by men’s and women’s health concerns. Specifically, a large body of research affirms that more women than men believe in a link between food consumption and health (Rozin et al., 2003; Wardle et al., 2004). This difference between male and female health perceptions may explain females’ tendency to choose a healthy beverage. Consistent with Rozin et al. (2003), it is plausible that the female participants were more likely to associate a beverage with its health implications than its culinary properties, and thus invoked health schemas in their decisions. That is, perhaps the female participants believed that a healthy item would be more beneficial, or at least less detrimental, to their health than the standard option. By contrast, males—who are less likely to perceive the health consequences of their food consumption (Wardle et al., 2004)—were presumably less prone to make health-conscious drink choices.

In addition to relative health concerns, body image may be another underlying explanation of the gender differences in beverage choice. A wealth research and common experience attests to gender differences in body image (Fallon & Rozin, 1985). For instance, a vast amount of literature confirms that a woman’s degree of satisfaction with her figure is strikingly lower than is a man’s satisfaction (Fallon & Rozin, 1985; Tiggemann, 2006). Fallon and Rozin (1985) attributed this difference to the fact that women’s ideal physiques are smaller than what they actually possess, whereas men’s optimal figures closely coincide with those they already possess. This desire for women to be thinner may arise from societal messages equating thinness to physical attraction and overall beauty in women (Fallon & Rozin, 1985; Tiggemann, 2006); therefore, it is no surprise that attaining a slender figure is a woman’s prime means of attracting the opposite sex (Fallon & Rozin, 1985). Although physical beauty standards indeed exist for males as well as females, males generally do not respond to these societal pressures in the same manner as do females (Aruguete et al., 2006). For instance, Aruguete et al. (2006) reported that women’s internalization of thin ideals is greater than is men’s. As a result, they concluded that women impose these standards on themselves, whereas men direct these standards outward and utilize them to form opinions of others. Consequently, it can be argued that females’ poor body image was manifested in their behavior in the present study. In this case, perhaps a societal compulsion to lose weight and to attain an ideal figure partially accounted for the drink choice of female participants.

Although a strong connection was found between gender and beverage choice, several limitations of the current study must be acknowledged. First, due to the naturalistic observational design of the study, no causal relationship between gender and drink order can be inferred. Next, the setting of the observation study, although ideal for reducing reactivity, was not the most conducive location for discerning a customer’s order. It is likely that some measurement error in the form of coding mistakes resulted from the inability to clearly hear an order. In addition, it was not always possible.
to determine who the ordered drink was intended for because some patrons may have ordered the drink for a friend or family member. This source of error variance could have potentially masked the true nature of the relationship between gender and beverage choice. Furthermore, the patrons’ knowledge of the menu was not controlled for. Out of the possible modifiers, only the light beverages were prominently displayed on the restaurant menu; all other modifiers were indicated by a small side note with low visibility to patrons. This factor potentially introduces an element of bias in the study, in that patrons’ drink orders may have been explained more by their being unaware of healthy alternatives than by their respective gender. Finally, only one coffee shop was observed, and the study did not control for demographic components other than gender. Therefore, our findings may not be generalizable to individuals in other locations or of other races.

The relationship between gender and food consumption is a provocative area of study with great relevance to society, and a number of avenues warrant further exploration. For example, one viable extension of this study would be an investigation of gender differences across ethnicities, races, religions, and geographic locations. Research confirms that food behavior and health beliefs vary by ethnicity and region of the United States (Granner, Sargent, Calderon, Hussey, Evans, & Watkins, 2004), and it is reasonable to expect that these demographic characteristics might potentially moderate the gender differences observed here. The influence of peers on one’s food behavior is another potentially fruitful avenue for future investigation. For instance, perhaps women’s tendency to order the healthy alternative is related to the presence of friends, colleagues, members of the opposite sex, or the complete absence of other individuals. Furthermore, recent research has investigated a variety of environmental cues—other than the presence of other people—that may influence one’s consumption habits (Gorg, Wansink, & Inman, 2007; Wansink & Van Itersum, 2003) For instance, Gorg et al. (2007) found that people consume more hedonic foods such as popcorn when they are in a sad rather than a happy mood; however, the influence of one’s emotional state is minimized when nutritional information is included with the food item. Finally, in order to gain deeper insight into the nature, explanations, and underlying causes of variations in beverage choice, it would be beneficial to employ multiple research methods. In addition to observations, both surveys and experiments could contribute to further understanding the relationship between gender and food consumption.

In sum, the present study confirms and expands the findings of a long line of research on gender and food consumption. It appears as though males and females indeed differ in the healthiness of their choices, with females tending to make healthier decisions. The findings of the present study have potentially important implications in the sales and marketing of food. Specifically, it seems plausible that health-food advertisements and self-help nutrition books are reaching a predominantly female population. Perhaps the food industry should be aware of its capacity to attract different individuals and should take advantage of gender-related eating habits. In short, further exploration of male and female food perceptions will provide insight into the role that food plays in maintaining gender identity and adhering to gender roles, and consequently, will reveal more about society’s fixation with food consumption.

References
The Effect of Thinness Promoting Reality TV Shows on Being At-Risk for an Eating Disorder

This study examines whether or not college women determined to be at risk for an eating disorder are more prone to watch reality television shows that are thinness-promoting than those women not determined to be at risk for an eating disorder. The participants were 53 college women recruited from undergraduate psychology classes. They were assigned to one of two groups: at risk for an eating disorder or not at risk for an eating disorder. All participants completed a survey designed to determine their reality show viewing preferences and frequencies. While we expected that the at-risk group would prefer watching reality shows that are thinness-promoting and will watch them more frequently than the group containing participants who are not at risk for an eating disorder, these effects did not materialize. Possible explanations for this result are discussed.

In the field of psychology, eating disorders are an extremely popular area of study. Eating disorders predominantly affect women, with less than ten percent of cases being men (Andersen & DiDomenico, 1992). Their incidence for females has increased dramatically in our society over the past 30 years (Harrison & Cantor, 1997), and currently approximately 1 in 100 female adolescents suffer from anorexia, and 4 out of 100 suffer from bulimia (ANRED.com). Because of the dramatic increase in cases, even in non-western countries, researchers have studied them extensively trying to determine the causes and effects of having an eating disorder along with the best way to treat eating disorder patients. Treating eating disorders is of utmost importance, because without treatment up to 20 percent of serious eating disorder cases are fatal. Eating disorders have also been linked to several other problems, such as mood disorders, substance abuse, and abuse as a child (Kirsch, McVey, Tweed, & Katzman, 2007). Often times, those with serious eating disorders will abuse alcohol or prescriptions in an attempt to numb themselves. Up to 50 percent of those with eating disorders also have substance abuse problems (Stice, Presnell, Gau, & Shaw, 2007). Studies examining the causes of eating disorders identify risk among sociocultural factors, family factors, genetic factors, body image and satisfaction factors. Polivy and Herman (2002) studied sociocultural and family factors contributing to the development of eating disorders. The authors stated that eating disorders are much more prevalent in cultures of abundance, such as the United States. The study also noted that factors such as the media and peer influence can have an effect on whether or not someone develops an eating disorder. According to the authors, one of the largest components in the development and perpetuation of eating disorders is family factors, particularly the mother’s attitude about eating and weight. Other individual factors were also studied, such as abuse, low self-esteem, and the co-occurrence between eating disorders and mood disorders. Many other studies support the findings of the Herman & Polivy study, such as a 2001 study done by Striegel-Moore & Cachelin, which

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studied the same causal factors and came to essentially the same conclusions.

The general consensus in current eating disorder research is that many different factors go into the development of an eating disorder, and that, most of the time, one individual factor cannot trigger an eating disorder. Instead, it is presumed that sociocultural, familial, and personal factors must interact in the individual in order for them to develop an eating disorder. This study will focus on the sociocultural aspect of developing an eating disorder, more specifically, the influence of the media.

Much research has been done on the relationship between the media and eating disorders. Most of this research has been done using print media, such as magazines. The most popular type of magazine used for these studies is fashion magazines. A 2004 study conducted by Cameron and Ferraro found a significant decline in body satisfaction in both body satisfied and body dissatisfied groups after exposure to health and fitness magazines, and in the overall study a greater decline in body dissatisfaction was found in the dissatisfied group after exposure to the media. Another study by Joshi, Herman, and Polivy (2003) examined the effect of thin-body images in magazine advertisements on mood, self-esteem, and self-image ratings, and also analyzed whether or not duration of exposure had an effect on any of the previously mentioned scales. There were two groups in the study labeled as restrained eaters and non-restrained eaters. The study found a significant impact of thin-body images with as little as 150 milliseconds of exposure. Research done using as the media of choice has generally shown the same effect as the research using magazines. Tiggerman and Pickering (1996) showed that while the amount of television women watched did not have a significant correlation with body dissatisfaction or drive for thinness, the categories of the programs they watched did. Specifically, watching soap operas and movies predicted more body dissatisfaction, and watching music videos predicted drive for thinness. The studies mentioned are just a few out of a large amount of previous research that have shown a link between thinness promoting media and body dissatisfaction and eating disorders. However, it is hard to pinpoint a causal relationship.

One area of eating disorders study that has not been explored yet is the effect that reality shows could be having on eating disorders. Reality TV shows are a relatively new phenomenon, but have become extremely popular in this country in the past few years. There are reality shows for pretty much every interest you can think of. Ten years ago, barely anybody had even heard of a reality show and now six of the top twenty rated shows are reality shows (zap2it.com), and that’s just on network television. If you took into consideration hundreds of cable and satellite channels that have their own reality shows, I suspect that that number would be even higher. One of the popular topics for reality shows is the quest for the “perfect body”. Reality shows such as Dr. 90210 and Extreme Makeover show women before, during, and after undergoing plastic surgery. These shows often glamorize plastic surgery. They focus on the benefits of plastic surgery, and how much better the person looks after surgery while minimizing the risks that plastic surgery involves. In most of the shows, the women (or men) depicted give a touching testimonial to how much plastic surgery has improved their lives. Another type of thinness-based reality show is the type of show that shows dramatic weight loss. An example of this would be The Biggest Loser, which shows a group of overweight people competing to see who can lose the largest percentage of their body weight. These shows emphasize a preference for thinness.

Considering their sweeping popularity, it is surprising that so little research has been conducted with reality shows as the subject matter. Of the little research that has been done, most of it has tried to address the question of who is really watching reality shows. Reiss and Wiltz (2004) focused on determining what type of person enjoys watching reality TV. They came to the conclusion that there is no “profile” for a reality show viewer. However, one characteristic that separates regular viewers from people who consider themselves fans of a show seems to be a desire for status, and a tendency to be impressed by the perceived importance of the participants on reality shows.

In relation to eating disorders, virtually no research has been done specifically on reality television (note: Here we do not mean daytime talk shows). The current study addresses this gap in the research. The study analyzed the relationship between college women identified to be at-risk for an eating disorder, the reality television shows they choose to watch, and the frequency at which they watch them. The results for this study were expected to go along with previous research conducted using other types of media, such as magazines and television. As discussed above, many studies have been done to try to determine the effect of thin media images on body satisfaction. The consensus of that research is that thin media images do have a negative effect on body satisfaction, even with very brief exposure. It was expected that those individuals identified as being at-risk for an eating disorder would be more likely to watch reality shows that promote thinness, and to watch them more often than those who were identified as not being at risk for an eating disorder, and to show results similar to the previous studies.
The Effect of Thinness | Jorissen, Ferraro, and Sandau

Methods

Participants
Two groups of females were tested. The at-risk for an eating disorder group contained 23 participants (M age = 21 years, SD = 6.6) while the not at-risk for an eating disorder group contained 30 participants (M age = 19.9, SD = 2.2). At-risk status was based on the SCANS screening instrument results. The mean BMI for the at-risk group was 23.7 (SD = 3.9). This group also exercised 6.0 hours per week on average (SD = 4.4) and had M = 14.1 (SD = .9) years of education. The mean BMI for the non-at-risk group was 22.4 (SD = 2.4). This group exercised 5.6 hours per week on average (SD = 3.3) and had M = 14.3 (SD = 1.2) years of education. Participants were recruited through the undergraduate psychology classes at a large mid-western university. Class credit was awarded for participation.

Materials
In this study, there were three types of surveys used. One survey was used to collect the demographic information from the participants, such as age, year in school, etc. Another survey assessed whether they are at risk for an eating disorder or not at risk, in order to place the participants into the initial groups for the study. This survey was the SCANS (Setting Conditions for Anorexia Nervosa Scale; Slade & Dewey, 1986). The SCANS consists of 40 questions in five areas (general dissatisfaction, social and personal anxiety, perfectionism, adolescent problems, and weight control). It is scored on a five-point Likert scale. If participants scored 42 or higher on general dissatisfaction and 22 or higher on perfectionism they were put into the at-risk group.

Results and Discussion

With regard to SCANS performance, the groups differed significantly on Dissatisfaction, F(1,51) = 88.28, p < .01, but not Perfectionism, F(1,51) = 1.80, p = .19, with the at-risk group more dissatisfied, thus lending credibility to the distinction between at-risk and not at-risk. The two groups did not differ significantly on age, years of educations, BMI, average hours exercising each week, whether they have ever or are currently dieted, and whether they have ever been on or are currently taking weight loss supplements (all ts < 1.53, all ps > .05). Likewise, and with regard to the reality TV survey, the two groups did not differ on the total number of shows watched, total thinness-promoting shows watched, total shows watched in the past 2 weeks, total thinness-promoting shows watched in the last two weeks (all ts < 1.10, all ps > .05).

The results of this study did not turn out as expected and the two groups did not differ significantly with regard to their reality TV viewing preferences and habits. However, the at-risk group did watch more thinness-promoting reality TV shows and the at-risk group did watch them more frequently than the non-at-risk group, although not significantly more. While it is tempting to conclude that reality TV shows have no effect on whether or not someone is at-risk for an eating disorder, there is no way for this study to show whether or not the participants were at-risk for an eating disorder before they ever started watching the shows, or if they became at-risk or more at-risk after watching the shows for a prolonged period of time. It would seem logical that reality shows would act like the other media sources, like magazines.

Another alternative explanation for why the study did not obtain the expected results could have to do with the SCANS scores, in that we only displayed a significant SCANS score difference on the Dissatisfaction sub-scale and not the Perfectionism sub-scale. Although

Younger, The Swan, America’s Next Top Model, Dr. 90210, The Biggest Loser, Celebrity Fit Club, Extreme Makeover, Beauty and the Geek).
it would have been ideal for the groups to differ on both sub-scales, it would seem that the groups differing of Dissatisfaction would have resulted in greater group differences in reality TV show watching. Likewise, it may be possible that at-risk people start watching reality shows because they think they relate but actually end up feeling a little better about themselves due to the extreme nature of the shows. Thus, it is possible that the viewers start to think “I am not that bad” or “I am not as heavy as that person” and, as a result, become less at risk. If this is the case, the shows would have an opposite effect than the one we had predicted, thereby potentially explaining the null findings. Although not possible in this study, a pre-post-design could potentially address this issue.

Although the present hypothesis that reality TV show viewing would be greater in individuals at-risk for an eating disorder, the extensive research on the effects of thin media images on body image could provide a model for further research concerning thinness-promoting reality TV shows and their effect on society.

References

The Effects of Yoga on Self-Objectification

Objectification theory postulates that women exist in a cultural milieu of sexual messages that serve to socialize women and girls to view themselves as objects to be examined by others (Fredrickson & Roberts, 1997). As a result girls and women internalize an observer’s perspective of themselves, concentrating on how they look at the expense of being aware of how they feel, an effect termed self-objectification. The present study investigated whether yoga can reduce self-objectification. Yoga is a mind-body exercise which emphasizes awareness of internal states at the expense of awareness of outward appearance. A certified Kundalini instructor taught yoga classes to adolescent participants. Participants completed self-objectification measures before and after their yoga classes. Overall, results were promising and provided limited support for the hypothesis that yoga instruction can reduce self-objectification. Implications for future research on yoga interventions for self-objectification are discussed.

Yoga as an Intervention for Self-Objectification
Self-objectification means that individuals think about and value their own body more from a third-person perspective, focusing on observable body attributes (e.g., “How do I look?”), rather than from a first-person perspective, focusing on privileged, or nonobservable body attributes (e.g., “What am I capable of?” or “What do I feel?”; Fredrickson, Roberts, Noll, Quinn, & Twenge, 1998, p. 270).

Objectification
Objectification theory, as developed by Fredrickson and Roberts (1997), postulates that Western culture’s background of sexual objectification serves to, at some level, socialize girls and women to treat themselves as objects to be viewed and appraised by others. The extent to which individuals internalize an observer’s perspective of their bodies does differ, with women self-objectifying more than men (Fredrickson et al., 1998), which may help explain the excessive occurrence of unipolar depression, sexual dysfunction, and eating disorders among women (Fredrickson & Roberts, 1997).

Self-objectification in women develops at puberty (Roberts & Waters, 2004). During early adolescence young women accumulate fat on their hips and thighs, developing what is scientifically known as a gynoid fat distribution, or more simply, a figure (Fredrickson & Roberts, 1997). In Western cultures, thelarche, the beginning of the development of breasts, occurs around 11 years of age (Ellis, 2004). With this developing figure most girls move further from the ideal female form depicted in the media, which may account for the feelings of shame and disgust experienced by some girls during this transition (Muehlenkamp & Saris-Baglama, 2002). It is during this period of physical change that girls’ bodies become “public domain” (Fredrickson & Roberts, 1997, p. 193), receiving increased sexual attention, evaluation and commentary from others (Roberts & Waters, 2004).

Far from a form of vanity, self-objectification serves as a survival tactic for girls and women (Fredrickson et al., 1998). Self-objectification, like all survival tactics, has its benefits. Women deemed attractive are more socially mobile, popular, have better dating experiences and are less likely to suffer job discrimination (Fredrickson & Roberts, 1997). However, the benefits of self-objectification are not without their costs. Self-objectification contributes to: body shame (Fredrickson & Roberts, 1997); eating disorders (Slater & Tigge-
Brain areas such as the frontal and parietal cortices, as examined by participants during simple Kundalini meditation. Research by Lazar et al. (2000) used a functional MRI (fMRI) to examine the areas of the brain activated to unleash the energy of their minds and bodies. Also, state self-objectification, the subjective and transitory experience of self-objectification, has been associated with an increase in anxiety (Gapinski, Brownell & LaFrance, 2003) and a decrease in performance on a math task (Fredrickson et al., 1998).

Fredrickson and Roberts (1997) suggest that sports participation and physical activity could protect women and girls from self-objectification. Participation in physical activity has, in fact, been shown to have a number of psychological benefits, including enhanced mood and elevated self-esteem and body satisfaction in many age groups. However, one group which does not seem to experience the positive psychological benefits of physical exercise is young women (Prichard & Tiggemann, 2005). Parsons and Betz (2001) found that among young women (18 to 20 years old), participation in sports and/or physical activity was associated with body shame, especially among those who participated in more “feminine” sports such as dance team, cheerleading and gymnastics.

One form of exercise which may produce psychological benefits in young women as well as older women is yoga. Yoga is a mind-body exercise in which practitioners seek to unify the mind and body by immersing themselves in the sensations of their bodies (Daubenmier, 2005). Traditional yoga studios do not have mirrors, to encourage an emphasis on internal awareness. Rather than placing importance on attaining a pose, the emphasis in yoga is placed on how the body feels before, during, and after the pose. Daubenmier (2005) found that among women ages 18-87, more hours a week of yoga participation were associated with lower trait self-objectification, as well as greater body awareness, satisfaction, and responsiveness.

Physiological Response to Yoga
Kundalini yoga incorporates elements of all yoga practices such as body position, with an emphasis on breathing, mantras, and meditation. Through this combination, Kundalini practitioners are encouraged to unleash the energy of their minds and bodies. Research by Lazar et al. (2000) used a functional MRI (fMRI) to examine the areas of the brain activated by participants during simple Kundalini meditation. Brain areas such as the frontal and parietal cortices, as well as areas implicated in arousal/autonomic control (i.e., the amygdala, midbrain and hypothalamus) were activated during meditation (Lazar et al., 2000). The parietal cortex is a brain area involved in processing bodily sensations, while the autonomic nervous system is important for experiencing emotional states. The activation of these brain areas during Kundalini meditation is antithetical to the process of self-objectifying; during meditation one’s attention is internally focused whereas self-objectification is externally focused.

Changes in Adolescence
Adolescence is a time of great change. Many of these changes are physiological in nature, such as continued prefrontal cortex development (Casey, Getz, & Galvan, 2008) and the onset of rhythmic hypothalamic activity which generates the menstrual cycle by regulating luteinizing hormone and follicle stimulating hormone. This increase in luteinizing and follicle stimulating hormones has in turn been associated with the onset of adolescent behaviors, sexual motivation, and even behavioral disorders (including anorexia nervosa; Plant & Shahab, 2002). It is, in fact, directly following menarche (the onset of menstruation) when the higher incidence of depression in females (as compared to males) and the increase in negative body image is first detected (Benjet & Hernandez-Guzman, 2001).

Adolescence may be particularly troubling for girls as it is also the time when the negative consequences of self-objectification are first seen in young women (Fredrickson & Roberts, 1997). It is important to develop interventions to decrease self-objectification in this vulnerable population. Participation in yoga could serve to protect adolescent girls from internalizing an observer’s perspective and therefore, the negative repercussions of self-objectification.

The current study examined the effects of Kundalini yoga on self-objectification in adolescent girls. A certified Kundalini yoga instructor was recruited from the community to teach weekly yoga classes for adolescent girls. It was hypothesized that yoga instruction would reduce state self-objectification at the end of each yoga session and trait self-objectification at the end of the 6 week intervention.

Method
Participants
Participants were recruited from a local Boys and Girls Club (Anchorage, Alaska). In order to be eligible for the study, participants had to be adolescent girls between the ages of 9 and 15. Girls (N = 8) ranging in age from 9-11 participated; 50% of the sample was Black, 25% Hispanic, and 25% White. Informed consent was obtained from the parents of the partici-
pants and assent was obtained from the participants themselves.

To help in recruiting participants and to increase participant motivation, participants were allowed to choose a free T-shirt from Emotional Armor® for their participation. Emotional Armor® is a company that specializes in clothing with empowering messages (e.g., never underestimate me). The T-shirts were given to the participants at the completion of the study. Participants were also given a yoga mat, which they used during the intervention and were allowed to keep following completion of the yoga intervention.

**Materials**

**Trait self-objectification.** A modified version of the ten-item Self-Objectification Questionnaire (SOQ) was used to measure trait self-objectification (Fredrickson et al., 1998). Modifications were made to the SOQ such that the language was appropriate for the anticipated reading level of the participants. Participants used a Likert-type scale (Very Important to Not At All Important) to indicate how important each of 11 body attributes were to them. The attributes include physical skill, being healthy, how much you weigh, being strong, looking good to boys, being pretty, having a lot of energy, firm muscles, being physically fit, clothing size, and looking good to girls. Six of these attributes were appearance-based (e.g., “How important is it to be pretty?”), and five attributes were competence-based (e.g., “How important is it to be healthy?”).

**State self-objectification.** As used in Fredrickson et al. (1998), participants were administered a modified version of the Twenty Statements Test (TST; Bugental & Zelen, 1950) to measure state self-objectification. However, due to the age of the participants the test was shortened to 10 statements. Participants were instructed to, “Please think about how you feel about yourself and who you are.” They were then given the stem, “I am ____” ten times and asked to complete the stem.

**Procedure**

The current study recruited a certified Kundalini yoga instructor from the community to teach adolescent girls yoga. Participants completed six weekly yoga sessions. All participants answered a modified version of the SOQ (Noll & Fredrickson, 1998) before and after their 6-week yoga intervention to establish trait self-objectification. They also completed a modified version of the TST before and after each 60-minute weekly yoga class to assess state self-objectification (Fredrickson et al., 1998).

State self-objectification data was analyzed such that if participants missed a session, the next session they attended was analyzed in its place. For example, if a participant missed sessions two and five, the analysis included their scores for sessions one, three, four, and six. Due to participants missing classes, only four weeks of state self-objectification data were analyzable for the full set of participants. The participants’ responses were coded by two independent blind coders using Fredrickson and colleagues’ (1998) coding system that classifies responses into six categories: body shape and size, other physical appearance, physical competence, traits or abilities, states or emotions, and uncodable. Participants’ responses categorized as “body shape and size” and as “other physical appearance” were counted as self-objectifying statements. Inter-rater reliability was .90 as measured by percent agreement. State self-objectification scores consisted of the percentages of self-objectifying statements made by participants.

**Results**

State self-objectification scores were right-skewed. Therefore, a square root transformation was utilized to

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**TABLE 1**

<table>
<thead>
<tr>
<th>Session</th>
<th>Pretest M (SD)</th>
<th>Posttest M (SD)</th>
<th>Overall M (SD)</th>
<th>η² G</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 1</td>
<td>15.2 (4.7)</td>
<td>9.4 (9.4)</td>
<td>12.3 (6.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 2</td>
<td>12.1 (10.1)</td>
<td>10.1 (4.8)</td>
<td>11.1 (6.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 3</td>
<td>7.5 (7.1)</td>
<td>11.3 (6.4)</td>
<td>9.4 (6.2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 4</td>
<td>13.7 (7.9)</td>
<td>11.9 (14.1)</td>
<td>12.8 (10.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>12.1 (5.6)</td>
<td>10.7 (4.8)</td>
<td>12.8 (6.2)</td>
<td>.02</td>
<td>.09</td>
</tr>
</tbody>
</table>
normalize state self-objectification data. The data were then analyzed using a repeated measures (Test X Week) analysis of variance (ANOVA). There was a marginally statistically significant decrease in state self-objectification between pretest (before each yoga session) and posttest (after each yoga session) when averaging across all four sessions, \( F(1,7) = 3.96, p = .09 \). Averaging across pretest and posttest, there was no significant change in the percentages of self-objectifying statements made by participants over the four weekly sessions, \( F(3, 21) = .25, p = .86 \). There was a marginally statistically significant interaction between test and week, \( F(3, 21) = 2.54, p = .08 \); self-objectification scores decreased most dramatically from pretest to posttest during the first week and remained relatively stable from pretest to posttest during the remaining weeks. The untransformed means, standard deviations, effect size, and significance level for the effect of yoga on state self-objectification scores are presented in Table 1.

Using a paired samples t-test, there was no significant difference between trait self-objectification scores before and after the 6-week yoga intervention \( t(7) = .68, p = .52 \). Kundalini yoga appears to have been more effective at reducing state rather than trait self-objectification.

**Discussion**

The results of the current study provide limited support for the hypothesis that participation in yoga could serve to protect adolescent girls from the negative repercussions of self-objectification. However decreases in state self-objectification scores did not reach conventional statistical significance, due to small sample size which resulted in limited power (i.e., observed power = .40) to test the effects of the intervention. Using generalized eta squared as described by Bakeman (2005), the effect size of the yoga intervention was calculated to be .02. Generalized eta squared is a conservative effect size estimate as compared with the partial eta squared reported by many statistical packages, and is especially appropriate for repeated measures analyses as it allows for comparisons with between-subjects designs (Bakeman, 2005). An effect size of .02 is considered to be small, adding to the problem of low power. However, when sufficient participants for high power cannot be recruited in a study, accepting an alpha level of .10 is a sensible alternative (Keppel, 1991). Therefore, the present results indicate that yoga could serve as propitious intervention for reducing self-objectification.

Also, the effects of yoga on self-objectification may be particularly striking at the beginning of the intervention. In the current study there was a drop in state self-objectification immediately after the first session. In fact, the percentage of self-objectifying statements after the first yoga session was almost 40% lower than the percentage before the first yoga session. These results are promising and suggest that yoga could have immediate benefits after the first session. This lends support to previous findings suggesting that yoga reduces self-objectification (Dauenhauer, 2005).

A state of self-objectification may diminish attentional resources, by focusing one’s attention on one’s appearance (Quinn, Kallan, Twenge, & Fredrickson, 2006). Conversely, yoga participation encourages a sensory awareness of internal sensations rather than external appearance (Boudette, 2006). Participation in an initial yoga session may produce an immediate response in participants, which increases sensory awareness of internal states, resulting in a corresponding decrease in self-objectification.

Achieving conventional statistical significance was also complicated by a floor effect: the range of percentages of self-objectifying statements (i.e., state self-objectification) was 0-30%, with an average of 9.85%. This left participants with little room to decrease in state self-objectification. One potential explanation for the apparently low self-objectification in this sample is the race of the participants. Half were Black; African American women have experienced a history of racial prejudice which may incline them to shun the dominant culture’s appraisal of beauty, therefore insulating them from the barrage of sexually objectifying messages which exist in the dominant culture (Fredrickson & Roberts, 1997). Nevertheless, taking all of the current limitations into consideration, the results of this study are promising.

When an individual self-objectifies, his or her mental resources are focused on awareness of their outward appearance; monitoring one’s outward appearance results in “reduced opportunities for rewarding ‘flow’ experiences … and diminished awareness of internal bodily states” (Fredrickson et al., 1998, p. 270). Participants in traditional yoga classes are encouraged to become, “aware of the body for how it feels, rather than how it looks,” focusing mental resources on the bodily sensations experienced during their yoga practice (Boudette, 2006, p. 168). Due to the limited nature of mental resources, the emphasis placed on processing bodily sensations during traditional yoga practice may make participation in traditional yoga antithetical to the process of self-objectifying (Baumeister, Bratslavsky, Muraven, & Tice, 1998).

Self-objectification is detrimental to girls and women of all ages (Slater & Tiggemann, 2002; Muenkenkamp & Saris-Baglama, 2002; Fredrickson et al., 1998). Although the negative consequences of self-objectification emerge in adolescence, it is theorized that all women possessing a reproductively mature
female body experience the oppression of self-objectification (Fredrickson & Roberts, 1997). As a form of oppression self-objectification works by simultaneously increasing a woman’s propensity for body shame (Fredrickson & Roberts, 1997), and eating disorders (Slater & Tiggemann, 2002) while decreasing her intrinsic motivation (Gapinski, Brownell & LaFrance, 2003) and reducing her awareness of her internal states (Fredrickson & Roberts, 1997). Due to the insidiously detrimental effect of self-objectification on women of all ages, and the promising nature of the current research, it is important that future research continues to examine yoga as an intervention for self-objectification.

As the negative consequences of self-objectification emerge in adolescence, it is imperative that more research be done on ways to combat self-objectification in adolescent female samples. Specifically, future studies should target more at risk samples of adolescent females, i.e., ages 12 years and older. Through participation in yoga, adolescent girls may acquire knowledge of how to focus their attention on their internal processes and bodily sensations instead of their physical appearance. This knowledge could serve to protect adolescent girls from internalizing an observer’s perspective and therefore, the injurious consequences of self-objectification.

References
Stereotyping and Nonconformity: The Effects of Punk Music on Social Behavior

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Previous research has demonstrated that nonconformist behavior can be primed via visual activation of nonconformist stereotypes. The present experiments were conducted to determine if nonconformity can be primed via aural activation of the punk stereotype. In Study 1, 46 male and 104 female students from McDaniel College were primed with punk, popular, or no music and exposed to social pressure. Not only did participants exposed to punk music fail to exhibit nonconformity, they conformed more than participants who heard popular music and almost as much as those without a prime. As Study 2 determined that members of the population in question did associate the stereotype of nonconformity with punk music, possible alternative explanations and areas for further research are discussed.

Upon witnessing a person clad in patches and safety pins, covered in piercings and tattoos, it is nearly impossible to ignore the immediate conclusions one draws regarding this person. The use of stereotyping, or quickly applying information about a group of people to assess an individual, happens so often we may be unaware we are doing it. As a result, present social psychological research focuses less on whether individuals utilize stereotypes than on the specific content of and implications for the use of these classifications (McCauley, Stitt, & Segal, 1980). Similar patterns have emerged in the study of conformity; although there is no doubt that conformity occurs, there are seemingly limitless questions regarding social and individual mediating factors (Bond & Smith, 1996). At the juncture of these fields one encounters the question of how and to what extent they are related; in what ways and to what degree can the use of stereotypes affect conformity? If a stereotype activated, via an image of an individual, can influence conformity (Pendry & Carrick, 2001), can the music associated with conformist or nonconformist stereotypes similarly elicit conformist or nonconformist behavior?

Stereotype Activation
Early research into the automatic activation of attitudes conducted by Fazio, Sanbonmatsu, Powell, and Kardes (1986) found that objects associated with an attitude could effectively prime said attitude in participants, especially when the association between the attitude and object was particularly strong. For example, if cake is seen to be particularly positive, priming participants with the word “cake” will cause participants to more quickly identify a subsequently presented positive adjective as positive than a negative adjective as negative. This explicit or subliminal automatic activation of specific concepts in the minds of participants, also known as priming, has become the basis for psychological research across a breadth of areas in the field.

Although preliminary work in the usage of primes dealt with stimuli explicitly presented to participants,

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a recent study by Kawakami, Dovidio, and Dijksterhuis (2003) explored the effects on behavior of explicit versus implicit priming stimuli. In the first two of four studies, Kawakami et al. (2003) explicitly primed participants via photographs with either a young or elderly person, and observed that participants who had received the latter exhibited more conservative attitudes in accordance with their primed stereotype of the elderly. In the third study, participants were primed with the elderly stereotype subliminally via word strings and again exhibited conservative attitudes, a phenomenon replicated in the fourth study with a skinhead prime and the attitude of prejudice. In the latter two of the four studies, participants were primed with stereotypes or attitudes associated with a specific group (i.e. the word “old” for the elderly or racist attitudes for skinheads), but not explicitly with the group itself. From the results of these studies, one can conclude that subliminal or implicit primes may be effective in the same manner as the explicit visual or textual primes.

In further research into the specific effects of stereotype priming, Dijksterhuis and Knippenberg (1996) explored different associative effects of priming stereotypes. In a series of three studies, participants were primed by listing characteristics associated with either soccer hooligans or professors, depending upon the study, and then asked to identify words presented in a word puzzle. Consistent with hypotheses, researchers found that priming a stereotype increased the subjects’ mental access to stereotype-consistent traits and decreased their access to stereotype-inconsistent traits within the puzzles.

Research has examined not only the attitudinal and behavioral results of priming via subliminal stimuli, but also the very mechanisms at work during the priming process. The use of stereotypes to activate traits or attitudes regarding certain individuals or groups has been found to be the product of an unconscious and automatic mental reflex (see Greenwald & Banaji, 1995 for review). For instance, the activation of the trait of ignorance after the presentation of the “redneck” stereotype is not a result of any conscious mental effort, but is a shortcut taken by the brain upon the presentation of a familiar category to easily access the traits associated with that category. In a series of experiments, Blair and Banaji (1996) further explored the nature of stereotype traits, such as personality characteristics, and non-traits, such as objects, occupations, or activities. In these experiments, participants were asked to judge whether a name was male or female after being presented with a word ostensibly unrelated to the task. Participants responded more quickly when traits (experiment 1) or non-traits (experiment 2) were paired with stereotype-consistent names than stereotype-inconsistent names. For example, participants could identify the name “Debbie” as female more quickly when it was preceded by the word “sensitive” (associated with the feminine stereotype) than the word “decisive” (associated with the masculine stereotype). Due to the automatic nature of stereotype trait activation, research using priming has become a significant area of study in the nature of stereotypes.

In order to further understand this growing field of research, Lepore and Brown (1997) attempt to distinguish between stereotype and category activation while examining differences between participants who exhibit high- or low-prejudice. Researchers assert the distinction between a specific stereotype or characteristic, such as “intolerant,” and an overall category, such as a skinhead. This study concluded that while there is a difference between the way high-prejudice and low-prejudice participants respond to category activation, they respond similarly to direct stereotype activation. High-prejudice individuals tend to associate a category with more negative features than low-prejudice individuals, while both groups respond similarly when directly negative stereotypes were primed. Although Lepore and Brown (1997) provide important implications for individual differences that may affect the success of stereotype activation, they also elucidate situations in which the success of stereotype priming may overcome individual differences.

Herr (1986) expanded upon the research of activating attitudes via primes by not only examining the attitudes of participants who had received primes, but also examining their behavioral responses. A series of two experiments demonstrated that hostility could be activated not only in participants’ attitudes, but in their behavior as well. Participants were primed with either hostility or nonhostility and then asked to play a game with a partner. They judged their partner in accordance with the primed level of hostility, but also behaved toward them in accordance with the prime. Participants who believed their partners to be hostile performed more hostily in the game than even their “hostile” partners, while those who were primed with nonhostility performed less hostily than even their “nonhostile” partners.

Further research into stereotype automaticity (Bargh, Chen, & Burrows, 1996) has continued to demonstrate that the activation of a social stereotype can elicit responses from the perceiver in accordance with said stereotype. In a series of studies, Bargh et al. (1996) explored the types of responses that could be manipulated, determining that priming participants with specific stereotypes could alter not only attitudes, but also behaviors. For example, participants primed
with rudeness interrupted the researcher; those primed with the elderly walked more slowly, and those primed with an African American stereotype responded more hostilely. The findings of this preliminary research into nonconscious priming of behavior have been successfully replicated, demonstrating both its comparability to explicit priming (Chartrand & Bargh, 1996) and efficacy (Chartrand & Bargh, 1999).

The results of preliminary stereotyping research have inspired an array of studies into the effects of priming stereotypes on behavior. In a series of four experiments, Dijksterhuis and Knippenberg (1998) examined the range of behavior subject to stereotype priming, hypothesizing that something as complex as achievement on a test of general knowledge could be affected by priming with either an intelligent or an unintelligent stereotype. Over the course of the experiments, undergraduate students were primed with a college professor, secretary, or soccer hooligan in the intelligent, control, or unintelligent conditions, respectively; a fourth condition involved no priming. All participants then completed a test of general knowledge consisting of multiple-choice questions from the game Trivial Pursuit.

Participants in the intelligent condition who received the professor prime had higher scores on the knowledge task than those in the secretary-primed control group, whose scores were similar to those of participants in the no-prime condition. Similarly, participants in the unintelligent condition who had been primed with the soccer hooligan stereotype performed more poorly on the knowledge test than those in the no-prime condition, although the magnitude was not as great as the difference in the intelligent condition. Within the study, Dijksterhuis and Knippenberg (1998) examine the possible causes of this discrepancy, concluding that stupidity may not be as strongly attributed to soccer hooligans as intelligence is to professors. The implications of this incongruence include the need for a stereotype to be closely associated with a particular trait in order for it to be activated and exhibited by the perceiver.

**Priming Conformity**

Similar effects regarding the nature of priming complex behavior have been found in other research, notably in a study by Epley and Gilovich (1999) examining whether words related to conformity or nonconformity would elicit corresponding behavior. Participants were asked to unscramble grouped words in a computer program to form sentences. Two-thirds of the groups contained words synonymous with “conformity” or “nonconformity.” Upon completion of this presumably monotonous task, participants joined the experimenter and three confederates to answer questions regarding how interesting and enjoyable the computer task had been. Confederates reported consistently positive responses to these questions. Participants’ conformity was measured by how their responses compared to the confederates’ as opposed to those of a control group who had rated the experiment only minimally interesting and enjoyable. This research concluded that the nonconscious priming of conformity- or nonconformity-related words could increase or decrease conformity in participants. However, the researchers noted that the nature of the primes used for the nonconformity condition, often conformist words with negations as prefixes (e.g. “noncompliant” or “disobey”), potentially primed conformity as much as nonconformity, resulting in decreased effects for the nonconformist condition (Epley & Gilovich, 1999).

**Priming Conformity via Stereotype Activation**

Expanding upon the results of stereotype primes on complex behavior (Dijksterhuis & Knippenberg, 1998) and the evidence that conformist behavior is subject to priming effects (Epley & Gilovich, 1999), Pendry and Carrick (2001) hypothesized that the activation of stereotypes related to conformity or nonconformity can in turn prime conformist or nonconformist behavior. In an experimental study, undergraduate students were either assigned to a conformity or nonconformity condition and correspondingly presented with a photograph of either a man in a business suit with a caption describing him as an accountant or a spiky-haired man in graffitied street clothing with a caption describing him as a punk. Additional participants were part of a no-prime control group. Participants then engaged in a group activity in which they were told to count the number of beeps elicited by an amplifier and report the number they had counted; participants reported their count after confederates had each reported an intentionally incorrect count. The exception to the group setting was a solo condition, consisting of a portion of the no-prime condition that completed the counting task alone in order to establish an average count free of conformity pressure.

Participants in the nonconformist condition reported a mean count closer to that of participants in the solo condition; participants in the conformist condition reported counts closer to the mean of the confederates than to participants in the no-prime condition. These results suggest that not only did the nonconformist prime eliminate conforming responses, but also the conformist prime elicited extraordinarily conformist responses. A stronger effect was exhibited in the nonconformist condition, a finding which the researchers attribute to an ambiguity in primes.
researchers suggested that the punk stereotype is more closely associated with nonconformity than the accountant stereotype is associated with conformity (Pendry & Carrick, 2001), further emphasizing the necessity for primes to be explicitly associated with desired behavior.

It has been demonstrated that although behavioral responses can be primed by stereotype activation, the intensity of response is closely correlated with the strength of the stereotype association. It would follow that in order to use a different type of priming stimulus rather than an obvious stereotype activation method such as a photograph or a stereotypical description, the stimulus and stereotype must also be closely related. At this point, the potential for music to activate stereotypes must be examined in order to determine if music may be used as a prime to elicit similar behavioral responses.

**Music as Stimulus**

In a study of impression formation, Rentfrow (2004) proposed that musical preference is closely related to character; specifically that personality impressions formed on the basis of individuals’ music interests can be accurate and comprehensive. Undergraduate participants were asked to generate a top-10 list of their favorite songs and complete extensive surveys on various aspects of their personality. A second group of participants acted as observers, listening to each target’s top-10 list and rating their perception of the target on a multilevel personality scale. Results concluded that the observers were able to form accurate impressions of target personalities from the 10 favorite songs of the targets. These findings suggest that if a piece of music can elicit an accurate impression of personality, listening to a piece of music associated with specific social groups could result in accurate stereotype activation. For example, if punk music is associated with nonconformity, listening to punk music could activate the punk nonconformist stereotype.

Furthermore, the use of music as a means to activate conformist or nonconformist stereotypes presents a second level of investigation: since music is often accompanied by lyrics, the effects of lyrics themselves apart from the musical genre in which they are presented may be explored. Current research on the effects of music genre has concluded that, although listeners claim to pay more attention to lyrics than musical structure itself, musical structure may actually affect participants more than lyrics do. In a study of popular songs and their heavy metal counterparts, Brunner (2006) found that participants reported higher levels of negative affect when listening to a heavy metal cover of a song than its original popular version, despite identical lyrical content. This further suggests that separate styles of music may be processed differently, and thus different genres of music may be useful as different levels of priming stimuli. Despite evidence that music may produce more conscious changes in participant response to a song than lyrics (Brunner 2006), lyrics may still be a useful tool in priming research. Priming is achieved by automatically activating concepts in a participant’s mind in order to achieve specific behavioral responses. A recent study by Heil, Rolke, and Pecchinenda (2004) has concluded that semantic activation is an automatic process, which implies that words themselves can be utilized to prime participants’ behavior.

**The Present Studies**

As previously discussed, research has indicated that priming, including stereotype priming, can affect targeted complex behavioral responses ( Bargh et al., 1996; Dijksterhuis & Knippenberg, 1998; Epley & Gilovich, 1999; Kawakami, Dovidio, & Dijksterhuis, 2003). Particularly, recent research has established that conformity may be increased or reduced by explicit priming of corresponding stereotypes (Pendry & Carrick, 2001). Given the results of the aforementioned studies and in conjunction with the evidence that auditory priming may function similarly to visual priming ( Mulligan, Duke, & Cooper, 2007) and that music can be accurately associated with specific personality traits (Rentfrow 2004), it is plausible that music commonly associated with conformist or nonconformist stereotypes could be used to prime corresponding behavior. Furthermore, in light of research into the success of direct stereotype activation and the effectiveness of semantic priming (Heil, Rolke, & Pecchinenda, 2004), it is posited that lyrical content of music could affect the priming process as well.

Consequently, it would follow that listening to punk music could activate the punk stereotype, which is associated with nonconformity, and this activation would result in the demonstration of corresponding behavior. The following experiment tests the hypothesis that priming participants with punk music associated with a nonconformist stereotype would elicit nonconformity. Furthermore, the use of music with lyrics pertaining to nonconformity was expected to elicit more nonconformist responses than music with lyrics that pertain to love, and the degree of nonconformity was anticipated to be greater for those who listened to punk music than those who listened to popular music.

**Study 1**

**Method**

**Participants.** One hundred and fifty students, 46 male and 104 female, taking Psychology and Sociology classes
at McDaniel College were offered a minimal amount of extra credit in their courses in exchange for their participation. Participants ranged in age from 17 to 37, with a median age of 19.

**Design.** Participants were randomly assigned to either one of four experimental conditions or one of two control groups. The four experimental conditions were part of a 2 (music type: popular vs. punk) X 2 (lyric subject: nonconformity vs. love) between-subjects design. The music type was intended to prime the participants with a stereotype related to nonconformity or a neutral stereotype. Participants in the experimental conditions either received a nonconformist stereotype prime in which they listened to a punk cover of a popular song or a neutral prime in which they listened to the original popular song. In order to determine whether the message of the lyrics or the stereotype associated with the style of music (punk vs. popular), would affect participants’ responses, two songs with different lyrical themes were selected; one song’s lyrics spoke about nonconformity and the other concerned the theme of love. These same two songs were played by both punk and popular artists. Thus, participants either heard a song with nonconformist lyrics performed by a popular artist, the same nonconformist song performed by a punk artist, a song with neutral lyrics performed by a popular artist, or the same neutral song performed by a punk artist.

Participant’s responses in a social situation were measured in order to determine their level of conformity to a group after their respective primes. An auditory judgment task was given in which participants were asked to report a number they had individually determined after members of a group of confederates had each reported consistent but grossly inaccurate numbers; how close the numbers participants reported were to those given by the confederates was used to judge their degree of conformity. There were two additional control groups in the experiment. In the baseline conformity control group, participants completed the aforementioned auditory judgment task with the group of confederates. In the solo control group, participants completed the auditory judgment task alone. Neither control group listened to music before completing the judgment task. The baseline conformity group served to establish the average level of conformity participants would exhibit without primes in order to have a point of reference for conformity in the experimental conditions. The solo group was used to determine the average response of participants to the stimulus used in the auditory judgment task in order to have a reference point for responses completely devoid of social pressure to conform.

**Materials and Procedure.** Participants in all experimental conditions were scheduled individually and were joined in the waiting area by two to three confederates who arrived separately and from different directions. As conformity has been shown to increase with group size (Insko, Smith, Alicke, Wade, & Taylor 1985), participants were scheduled with three confederates whenever possible. The researcher led the participant and confederates into the lab and asked the group to listen to a piece of music that was ostensibly the first of two auditory judgment tasks being administered to determine how individuals make decisions. The group listened to either a popular or punk version of a song whose lyrics concerned nonconformity or love, depending upon their condition. Students in the neutral stereotype (popular music) condition heard the original recording of either “Your Love” by the Outfield or “My Way” by Frank Sinatra, depending on whether they were in the love or nonconformity lyric condition, respectively. Participants in the nonconformist stereotype (punk music) condition heard the aforementioned songs, covered by the punk bands Less Than Jake or the Sex Pistols, respectively. Participants in all four experimental conditions were asked to complete a questionnaire indicating the genre of music of the song they heard (i.e. “popular,” “classical,” “punk,” etc.) and how audible they felt the lyrics were on a scale of 1 to 7. Beyond acting as a cover story for the priming phase, the responses listed on the questionnaire serve as a manipulation check to determine whether participants were aware of the musical genre and therefore the intended stereotype associated with the song they heard and also whether they could understand the lyrics.

Participants in the baseline conformity control group received no prime but proceeded with the confederates directly to the next phase of the experiment in which all participants were asked to complete a variation upon an auditory discrimination procedure (Pendry & Carrick, 2001). The researcher played a 50-second recording of 105 random-interval tones and participants were told to attempt to count the number of keyboard tones they had heard. The researcher then asked each individual in the group to report aloud how many tones they had counted. In all groups where confederates were present, participants were asked to report the number of notes they heard after the confederates had each reported their estimates, which ranged from 125 to 130. In the solo control group, participants completed the auditory discrimination task without the presence of confederates in order to determine the natural response without social pressure.

All participants were probed for suspicion as to the general subject or hypothesis of the experiment via a series of questions (i.e. “Do you have any general idea what this study may be examining,” “Do you have...
any idea what the specific hypothesis of this study might be?,” etc.). The experimenter questioned the participant before any confederates present. After this, confederates were dismissed and participants in all conditions were thoroughly debriefed.

**Results**

**Did the presence of confederates cause conformity?**

As the actual number of tones was 105 and the confederates’ mean reported estimate was 127, it can be deduced that lower means are indicative of nonconformity while higher means may show a conformist reaction to group pressure. Mean estimates were calculated for the solo control condition \((M = 105.47, SD = 14.65)\) and the confederate control condition \((M = 120.95, SD = 7.86)\) in order to test whether the presence of confederates increased participants’ estimates and to provide a basis of comparison for experimental condition estimates. A *t*-test for independent means revealed that these control group estimates differed significantly from each other \((t(53) = 4.45, p < .001)\), indicating that the responses of confederates had a conforming effect on participants’ responses. Z-scores for each participant were calculated and scores falling outside two standard deviations of the mean were dropped from further analysis; nine total outlying participants’ responses were excluded.

**Manipulation Check of Lyrics.** In order to determine how audible lyrics were across conditions, a one-way (condition: punk nonconformist, punk neutral, popular nonconformist, or popular neutral) analysis of variance (ANOVA) was conducted on the reported level of audibility. There was a significant effect of condition on audibility such that participants who heard the popular nonconformist song \((M = 6.64, SD = .58)\) or the popular neutral song \((M = 6.41, SD = .67)\) found the lyrics to be more audible than participants who heard either punk song \((p < .01 \text{ for all comparisons})\), while participants who heard the punk neutral song \((M = 4.00, SD = 1.60)\) also found the lyrics to be more audible than participants who heard the punk nonconformist song \((M = 2.00, SD = 1.41, p < .01)\), \(F(3, 80) = 80.18, p < .01\).

**Did type of music and lyrics affect conformity?**

A 2 (popular or punk music) X 2 (nonconformity or neutral lyrics) X 2 (number of confederates) analysis of variance (ANOVA) was conducted on the aural estimates of participants in the four experimental conditions. This analysis revealed a marginal main effect of music such that participants who heard punk music \((M = 119.26, SD = 12.34)\) reported higher estimates (more conformity) than those who heard popular music \((M = 112.64, SD = 12.85)\), \(F(1, 81) = 3.55, p = .06\). There was also a marginal main effect of number of confederates.
such that participants in groups of three confederates reported higher estimates (more conformity) than those who were in groups of two confederates (\(M = 118.88, SD = 14.01\) and \(M = 113.02, SD = 12.15\), respectively), \(F(1, 81) = 2.77, p = .10\). Furthermore, there was a significant interaction between number of confederates and music type such that participants reported higher estimates (more conformity) when they had listened to punk music than popular music, but this was only true when there were three confederates present as opposed to two, \(F(1, 81) = 5.08, p = .03\) (see Figure 1). There was no main effect of lyrical content on participants’ estimates.

The main effect of punk verses popular music was qualified by a significant three-way interaction between music type, lyrical content, and number of confederates present, \(F(1, 81) = 5.44, p = .02\) (see Figure 2). Simple effects tests show that when the lyrics were neutral, participants who heard punk music reported higher estimates than those who heard popular music, but this was only true when there were three confederates present (\(p = .013\)). However, when lyrics were neutral but only two confederates were present, estimates from participants who had heard punk music were marginally lower than those who had heard popular music (\(p = .10\)). There was no significant difference between the estimates of those who listened to punk music and those who listened to popular music when lyrics were nonconformist, regardless of number of confederates present.

**Did conformity differ when a music prime was present vs. absent?** Further tests were conducted between the confederate control group and the experimental groups to establish the amount of conformity exhibited by participants who were exposed to a prime compared to those who were not. A 2 (number of confederates) X 3 (type of lyrics) analysis of variance (ANOVA) was conducted on the aural estimates of participants in experimental and no-prime conditions. There was a significant effect of lyric prime such that the responses of participants who received no prime (\(M = 122.31, SD = 7.86\)) were higher (more conformity) than the responses of participants who had heard neutral lyrics (\(M = 111.40, SD = 13.45, p = .01\)) and marginally higher than those who had heard nonconformist lyrics (\(M = 117.72, SD = 11.64, p = .07\)), \(F(2,102) = 3.96, p = .02\). A 2 (number of confederates) X 3 (type of music) ANOVA was also conducted on the aural estimates of participants in experimental and no-prime conditions. There was also a significant effect of music type prime such that participants who received no prime were higher (more conformity) than the responses of those who had heard popular music (\(M = 112.06, SD = 12.85, p = .01\)) or punk music (\(M = 118.71, SD = 12.34, p = .04\)), \(F(2, 102) = 4.17, p = .02\).

The main effect of music type prime was qualified by a marginally significant interaction between music prime and number of confederates present, \(F(2, 102) = 2.94, p = .06\) (see Figure 3). While participants who heard no prime reported significantly higher estimates than those who heard punk music (\(p = .03\)) and marginally significantly higher estimates than those who heard popular music (\(p = .06\)), this was only true when two confederates were present. When there were three confederates present, participants who heard popular music reported significantly lower estimates than those who heard punk music (\(p = .01\)) or those who received no prime (\(p = .05\)), indicating a significant increase in response (conformity) for participants who listened to punk music from a situation when two confederates were present to one in which three confederates were present, to the point of being the same as no prime.

**Discussion**

Although the results of the present study are highly incongruent with the researchers’ hypothesis, that both punk music and nonconformist lyrics would elicit nonconformist responses, there were a few accurately predicted results. As anticipated, the presence of confederates successfully elicited more conformist responses in the no-prime condition as compared to the solo condition. Similarly, consistent with past research (Insko, et. al., 1985), participants in experimental conditions exhibited more conformity when there were three confederates present than when there were only two. When participants received a prime, their responses were significantly different than when they
did not. Although the presence of this type of effect is consistent with past research (i.e. Pendry & Carrick, 2001), the direction was not; the fact that participants who received a punk prime were more likely to conform raises significant implications regarding the manner in which participants perceive different types of music and the stereotypes or people associated with them.

Despite the success of the present study at eliciting conformist responses from those participants in the presence of social pressure and the replication of past research on conformist response and group size, the main hypothesis that punk music would cause nonconformity was not only unsupported, but the opposite was demonstrated. Participants in the punk music condition had been expected to conform less than those in the popular music condition, yet they actually gave more conformist responses. However, this pattern only occurred when there were three confederates present and the lyrics were neutral. Moreover, when there were three confederates present, those in the punk condition were as conformist as those in the no-prime condition. Although the lack of extreme nonconformity in the punk music nonconformist lyric condition could be partially attributed to the lack of audibility in the lyrics of that condition, this does not explain the overall results of the study entirely. As the present study explored the behavioral effects of priming a stereotype via multiple levels of a stimulus across differing levels of social pressure, there are many possible explanations and areas for further research that may be necessary to begin explaining these complex results.

As responses differed significantly between music type conditions, it is possible that the music primes themselves activated different stereotypes than anticipated, thus eliciting unexpected behavioral responses. In a recent study on the behavioral effects of priming, Wheeler and Berger (2007) found that the same prime could produce different effects between groups of participants with distinctly differing personal characteristics, presumably by activating different associations and thus eliciting different results. It could be theorized that, depending upon the characteristics of the population in the present study, the music played for the participants did not activate the intended association. Even though it is impossible to determine what was activated in the minds of participants in the initial study retrospectively, follow-up research on the same population could suggest whether an association with nonconformity is elicited by the punk music primes; if no association is present, no behavioral effect would be expected.

Although the activation of an unintended stereotype association would have had a significant impact upon the initial study, other inadvertent processes could also have influenced participants in the present study. Custers and Aarts (2005) argue that if a goal is connected with positive affect, participants will be more likely to push toward its attainment than if it is associated with neutral or negative affect. In the present study, if participants in the popular condition experienced positive affect as a result of their music prime, they may have attempted to reach the goal of accurately counting the tones more than other participants. As the accurate number of tones was much lower than the number reported by confederates, this goal attainment could have manifested itself as nonconformity. Furthermore, the stereotypical “goal” associated with the punk stereotype would be nonconformity. Thus, if participants who were primed with the goal of nonconformity by either listening to punk music or nonconformist lyrics found the prime to cause negative affect, they could have been less likely to attempt to attain that particular goal. Examination of the extent to which the population in question enjoyed or felt comfortable while listening to both the punk music and popular music could help determine whether this explanation is plausible.

In preliminary studies of moderating factors to conformity, Tesser, Campbell, and Mickler (1983) examined the effects of social pressure, self-doubt, and attention to stimulus on participants’ conformist responses. This study found that social pressure (operationalized as the presence of three other people) increased conformist responses, especially when participants had paid little attention to the stimulus they were presented, a situation which often occurred as a result of self-doubt. Perhaps the presentation of punk music increased participants’ self-doubt, thus eliciting a chain reaction that ultimately led to conformist responses in the punk conditions. Although it is not possible to retroactively measure the self-doubt of participants in the initial study, further research could help to test this as a possible explanation for the initial results.

Furthermore, the overall lack of conformity by participants in the popular music condition could be a result of an affective response to or unanticipated priming as a result of the popular music. Current research into personality type and music preference has suggested that people who enjoy popular music are more likely to be extroverted (George, Stickle, Rachid, & Wopnford, 2007), while past research in conformity has demonstrated that people who are more extroverted are less likely to conform (DeYoung, Peterson, & Higgins, 2002). Although it is unlikely that only participants in the popular music condition enjoy popular music, it is possible that those participants in the popular condition were inadvertently primed with nonconformity by listening to popular music.
Study 2
A second study was conducted in order to test possible explanations for the results of the first study. As it is conjectured that participants’ behavior may have been affected by their level of comfort or the extent to which they enjoyed the music presented, these components were measured for each song. Furthermore, Study 2 establishes whether the music played for participants triggered the intended stereotype, an assumption that could have a vast impact on the success of stereotype priming.

Method
Participants. Seventy-seven students, 32 male and 45 female, taking Psychology and Sociology classes at McDaniel College participated as a voluntary class activity. Participants ranged in age from 18 to 22, with a median age of 18.

Design. Participants were randomly assigned to two of four experimental conditions, which were each part of a 2 (music type: popular vs. punk) X 2 (lyric subject: nonconformity vs. love) mixed design. As in the previous study, the music type was meant to evoke the stereotype of either nonconformity or neutrality; the lyric subject was introduced in order to determine if the lyrics of the music themselves were capable of further priming these stereotypes. Each participant listened to two songs from the first experiment in a counterbalanced order. Participants either listened to popular music or punk music. All participants heard one song containing nonconformist lyrics and one song containing neutral lyrics. After listening to each song, participants were questioned in order to evaluate their personal reaction to the music and to determine if the music had primed the stereotype intended (nonconformist vs. neutral). Participants filled out a questionnaire in which they rated their comfort level while listening to the song. This analysis revealed a significant main effect of music genre such that participants who heard popular music (M = 5.80, SD = .99) were more comfortable than participants who heard punk music (M = 4.39, SD = 1.53), F(1, 75) = 22.57, p < .001. Furthermore, there was a significant effect of lyric type such that participants who heard neutral lyrics (M = 5.61, SD = 1.85) were more comfortable than participants who heard nonconformist lyrics (M = 4.58, SD = 1.45), F(1, 75) = 35.53, p < .001.

A 2 (popular or punk music) X 2 (nonconformist or neutral lyrics) analysis of variance (ANOVA) was also conducted on participants’ level of enjoyment of the two songs they heard. A 2 (popular or punk music) X 2 (nonconformist or neutral lyrics) analysis of variance (ANOVA) was conducted on participants’ comfort level while listening to the music. This analysis revealed a significant main effect of music genre such that participants who heard popular music (M = 4.87, SD = 1.14) enjoyed it more than those who heard punk music (M = 2.95, SD = 1.33), F(1, 75) = 45.48, p < .001. There was also a significant effect of lyric type such that participants who heard neutral lyrics (M = 4.86, SD = 1.88) enjoyed the song more than those who heard nonconformist lyrics (M = 2.95, SD = 1.75), F(1, 75) = 85.80, p < .001. There was also a marginal interaction between music genre and lyric type, F(1, 75) = 3.05, p = .09. Participants enjoyed the music more when they heard neutral than nonconformist lyrics, especially when they heard the popular version of the song.

Were the intended stereotypes activated? The terms used to describe the type of person who would regularly listen to the music presented included ten characteristics thought to be indicative of conformist attributes. The following terms were used to rate conformity: traditional, likely to go along with the behavior of others, likely to care what strangers think about him/her, and...
compliant; the following terms were used to rate nonconformity and were reverse scored for all subsequent analyses: rebellious, original, likely to stand up against pressure from a group, independent-minded, defiant, and unique. In order to examine whether these ten characteristics could be combined into a single scale, reliability coefficients were calculated separately for each of the conditions (Cronbach’s Alpha of popular nonconformist = .71, popular neutral = .57, punk nonconformist = .80 and punk neutral = .78). Based upon these reliability coefficients, the mean of these ten characteristics was computed and used as a measure of conformity in the following analyses. Higher numbers indicated more conformity.

A 2 (popular or punk music) X 2 (nonconformist or neutral lyrics) analysis of variance (ANOVA) was conducted on the mean rating of conformist attributes. This test revealed a significant effect of music genre such that participants who heard popular music ($M = 3.70, SD = .55$) rated the type of person who would listen to that type of music higher (more conformist) than those who heard punk music ($M = 3.26, SD = .75$), $F(1, 72) = 7.87, p < .01$. There was no significant effect of lyric type.

**Discussion**

Results of the second study demonstrated that participants were more comfortable with both the popular music than the punk music, and the neutral lyrics than the nonconformist lyrics. Furthermore, participants enjoyed the popular music more than the punk music and the neutral lyrics more than the nonconformist lyrics, particularly in the popular version. Results from the examination of stereotype association demonstrated that participants associated the type of person who would normally listen to the punk music primes as more nonconformist than the type of person who would normally listen to the popular music primes, verifying that, for the second study participants at least, the intended stereotypes were activated.

**General Discussion**

Although past research led to the hypothesis that priming participants with the punk stereotype via punk music would elicit nonconformist behavior, the results of Study 1 show that not only was this not the case, but priming participants with punk music actually led to more conforming behavior than priming them with popular music. As the results of Study 2 indicate that participants from the population in question do indeed associate punk music with nonconformity, it is essential to examine other aspects of the study that could have compromised or altered the hypothesized reaction. For example, comfort and enjoyment ratings from Study 2 together lend further credence to the suggestion that participants may have experienced negative affect as a result of listening to the punk music or nonconformist prime. In light of previous research into goal attainment and affect (Custers & Aarts, 2005), it is possible that the responses of participants in the popular music condition that appeared to be nonconformity were actually a result of participants’ increased desire to give an accurate response.

In a meta-analysis of studies examining stereotype priming, Wheeler and Petty (2001) tentatively explored possible reasons that while most stereotype priming results in participants behaving in accordance with the prime, in some instances it has the opposite effect. Beyond individual differences of participants, it has been suggested that different types and presentations of primes may also alter the effects of stereotype activation. As priming stereotypes via music has not been widely attempted, perhaps this particular type of prime could be responsible for the discrepancy from the hypothesized behavior.

Finally, assuming that the majority of research affirming the automaticity of stereotyping and its observed behavioral responses is accurate, there have been potentially significant changes to the punk subculture that may be responsible for the observed results of the present research. Research into stereotype activation and its subsequent effects on behavior has often involved a model of goal activation in which the activation of a stereotype thus activates the goals associated with the stereotyped group (Aarts, Chartrand, Custers, Danner, Dik, Jefferis, & Chen, 2005). Although participants in the second study identified the type of people who would normally listen to punk music with nonconformity, the punk subculture itself has largely begun to be accepted into the mainstream.

While writing on the commercialization of subcultures, Moore (2005) claims that as subcultures are recognized by societies, they are absorbed into the social sphere; although society comes to recognize the values associated with the subculture, the values themselves become less shocking as a result. Although the punk subculture is still recognizable to those in mainstream society, it has been argued by many that what punk once stood for, including notions of anarchy and nonconformity, no longer bears the weight it once did. As marketing schemes increase the popularity of such movements, members of mainstream society begin to absorb and reflect tempered versions of once potent ideals. Despite knowing on a basic level the general goals of punks, society may reduce these goals to accessible and tempered versions of their former definitions (Moore, 2005).

On the basis of previous research, it was thought...
that punk music would elicit nonconformity, yet those
who listened to popular music were more noncon-
formist than those who listened to punk music overall.
Although many explanations for these results have been
addressed by the results of Study 2, there are further
areas of exploration necessary. Specifically, it is possible
that the very act of listening to punk music causes par-
ticipants to have increased self-doubt, which in turn has
been found to increase conformity (Tesser, Campbell
& Mickler, 1983). On a larger scale, the recent con-
tentious research challenging the automaticity of priming
stereotypes seems to have been strengthened if not
supported by the findings of the present studies. Even
though stereotypical thinking has been shown to occur,
further research into its automaticity and subsequent
effects on behavior would serve to enhance our under-
standing. Finally, further research into the changing
status of subcultures and stereotyping would serve to
illuminate the issues raised herein. Although partici-
pants in Study 2 seemed to identify those who listen to
punk music with the traditional punk nonconformist
stereotype, this association may no longer be strong
enough to translate into corresponding behavior. As
our culture identifies and even absorbs the goals and
values once reserved for the punk subculture, perhaps a
reevaluation of what remains of the subculture and the
changing identity of mainstream culture is in order.

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Contextual Variations of Mindfulness Across Interpersonal and Task-Oriented Contexts: The Roles of Gender and Ethnicity

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Mindfulness is the nonjudgmental awareness of what is taking place at the present moment (Kabat-Zinn, 1994; Marlatt & Kristeller, 1999; Dimidjian & Linehan, 2003). Although people can ideally practice mindfulness in any context, they may not practice mindfulness equally across different contexts. Existing mindfulness questionnaires, however, tend to measure mindfulness as a dispositional trait (i.e., a quality that remains relatively stable across contexts) rather than a variable state (i.e., a quality that varies with context). These questionnaires include the Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001), the Mindfulness Attention Awareness Scale (Brown & Ryan, 2003), the Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004), the Philadelphia Mindfulness Scale (Cardaciotto & Hebert, 2005), the Cognitive and Affective Mindfulness Scale and its revised version (Feldman, Hayes, Kumar, & Greeson, 2004). The goal of the present research is to empirically examine the alternative hypothesis that mindfulness tends to be a variable state by investigating whether mindfulness demonstrates a state-like quality across unspecified, interpersonal and task-oriented contexts.

Based on the general acceptance that mindfulness is more like a dispositional trait than a variable state, it is often assumed that one can generalize mindfulness skills to other life situations through mindfulness training in a clinical setting. Enhancement in mindfulness skills as a dispositional trait will then equip clients to better cope with a variety of physical diseases across different life situations. To date, empirical evidence suggests that interventions which deliberately cultivate mindfulness are effective in treating a wide range of health problems such as chronic pain, depression and anxiety (Baer, 2003). However, there is limited empirical evidence to suggest that mindfulness training in a particular setting can automatically prepare clients to generalize this knowledge to other daily activities. By examining how mindfulness may vary across contexts, this study evaluates the potential need for clinicians to teach clients to generalize mindfulness skills from a clinical setting to everyday life situations.

*Faculty Supervisor

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To begin to understand potential contextual variations of mindfulness, we first compared mindfulness scores across unspecified, interpersonal and task-oriented contexts. Based on previous research which linked females and Asians to higher levels of interpersonal interdependence, we further explored potential interactions between gender and context, as well as between ethnicity and context. For example, previous research in gender psychology suggests that females are relatively more interdependent than males (Cross & Madson, 1997). Likewise, although insisting that the overall interdependence levels of males and females might be similar, Gardner and Gabriel (2004) argue that males and females express interdependence in different ways, with males fulfilling their need of social contact by belonging to groups (i.e., collective interdependence) and females focusing on close relationships (i.e., relational interdependence). Based on these findings, it is plausible that females may tend to be more mindful in interpersonal contexts because being present and nonjudgmental are some of the qualities that might enable females to be more interdependent than males.

Similarly, ethnic differences in how people tend to interact with others may be related to contextual variations of mindfulness. For instance, previous research in cultural psychology suggests that Asian Americans are more concerned with maintaining group harmony and are more willing to give up personal interests for the sake of group benefits (i.e., being interdependent) than Caucasian Americans, who are more concerned with individual autonomy (i.e., being independent; Markus & Kitayama, 1991). Based on this finding, it is plausible that Asians may tend to be more present and nonjudgmental in interpersonal contexts because these are some of the qualities that might enable Asians to maximize group harmony.

Based on previous research, including the absence of parallel findings about gender and ethnic differences in unspecified and task-oriented contexts, we hypothesized that (1) there would be significant individual differences in mindfulness across unspecified, interpersonal and task-oriented contexts, (2) females would show higher levels of mindfulness in interpersonal contexts than in unspecified and task-oriented contexts, while males would show comparable levels of mindfulness across all three contexts, and (3) Asians would show higher levels of mindfulness in interpersonal contexts than in unspecified and task-oriented contexts, while Caucasians would show comparable levels of mindfulness across all three contexts. We further examined the relationships between mindfulness and other psychological constructs including attachment style, mood, social support and self-construal (i.e., independence vs. interdependence). We predicted that (4) relationships between mindfulness and these psychological constructs would vary depending on contexts.

Method

Participants

Undergraduate students (N = 204) at a major state university in the Pacific northwest were recruited from the Psychology Human Subject Pool from January 2008 to March 2008. A total of 222 undergraduate students participated in this study. Each participant received one hour of extra psychology course credit for their participation. Data from 18 participants were considered invalid because they failed to provide valid demographic information, including age, gender and/or ethnicity. Data from 204 participants were included in data analyses of this study.

Among all participants, 61.8% of them were female. The mean age of the whole sample is 19.38 (SD = 1.60). Of all participants, 45.6% were Caucasian, 36.3% were Asian, 4.4% were Native Hawaiian or Pacific Islander, and 13.7% were mixed or others ethnicities. Due to small sample sizes, participants of ethnicities other than Caucasian (n = 93) and Asians (n = 74) were excluded from subsequent analyses related to ethnicity. Data analyses unrelated to ethnicity included all participants of a variety of ethnicities.

Measures

Eight questionnaires were administered to all participants. The first three questionnaires evaluated participants’ level of mindfulness in unspecified, interpersonal, and task-oriented contexts. The original Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004) was shown to demonstrate good test-retest reliability and a clear factor structure. In this study, it was used to inquire five different aspects of mindfulness, including the ability to observe, to describe, to act with awareness, to be nonjudgmental, and to be non-reactive. Two modified, contextualized versions of the KIMS were designed in a way that they are as similar to the original version as possible, but with one specifying interpersonal contexts (e.g., interactions with parents, romantic partner or best friend) and the other specifying task-oriented contexts (e.g., doing homework, conducting research or working). In the two contextualized versions of the KIMS, participants were first asked to identify a particular person and a particular task that were important to them. Then, they were instructed to answer individual KIMS items in relation to this particular person and this particular task which they identified. Specifically, phrases such as “about this person” and “about this task” were added to each individual KIMS item for the sake of clarity. For
example, an item on the original KIMS was “I criticize myself for having irrational or inappropriate emotions.” In the interpersonal KIMS, this item was modified as “I criticize myself for having irrational or inappropriate emotions about this person.” In the task-oriented KIMS, this item was modified as “I criticize myself for having irrational or inappropriate emotions about this task.” All individual KIMS items were modified in a similar manner. The order of the unspecified, interpersonal, and task-oriented KIMS was counterbalanced to control for the carryover effect.

The remaining five questionnaires inquired participants’ attachment style, perceived social support, negative mood states, self-construal and demographics. These questionnaires were presented in the following order. The Experiences in Close Relationships Scale (ECRS; Brennan, Clark, & Shaver, 1998) was developed based around two factors analytically derived primary constructs of avoidance and anxiety. In this study, it was used to measure adult avoidance and anxiety attachment styles. The Social Provisions Scale (SPS; Cutrona, & Russell, 1987) was developed to measure perceived social support in terms of participants’ attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance. Although no published research has shown a robust factor structure of SPS, this measure has been widely used in research. With this in mind, we assessed participants’ levels of perceived social support with total SPS scores only. The Profile of Mood States (POMS; McNair, Lorr, & Droppleman, 1971) was shown to demonstrate good reliability and validity, and has been widely used in research. In this study, it was used to measure the degree to which participants have felt a range of moods in the past week. The Self Construal Scale (SCS; Singelis, 1994) was shown to demonstrate good reliability and validity, as well as two distinct factors. In this study, the SCS was used to inquire about participants’ levels of independence and interdependence. A demographics questionnaire was designed and used to inquire about participants’ age, gender, ethnicity, smoking habits and alcohol consumption.

### TABLE 1

<table>
<thead>
<tr>
<th>Gender</th>
<th>Unspecified Context</th>
<th>Interpersonal Context</th>
<th>Task-oriented Context</th>
<th>F(df1, df2)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>128.31 (14.65)</td>
<td>135.04 (14.00)a</td>
<td>128.32 (13.49)b</td>
<td>24.35 (2, 122)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Males</td>
<td>129.55 (15.96)</td>
<td>131.44 (14.84)</td>
<td>129.21 (15.09)</td>
<td>1.15 (2, 76)</td>
<td>0.321</td>
</tr>
</tbody>
</table>

a p < .01 compared to task-oriented context; p < .001 compared to unspecified context.
b No significant difference compared to unspecified context.

### TABLE 2

<table>
<thead>
<tr>
<th>Context</th>
<th>Caucasians</th>
<th>Asians</th>
<th>t(df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unspecified</td>
<td>131.36 (17.30)</td>
<td>125.79 (12.80)</td>
<td>2.46* (165)</td>
<td>0.015</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>136.57 (16.04)</td>
<td>130.08 (13.18)</td>
<td>2.77** (164)</td>
<td>0.006</td>
</tr>
<tr>
<td>Task-oriented</td>
<td>132.36 (15.62)</td>
<td>128.01 (11.40)</td>
<td>2.08* (164)</td>
<td>0.039</td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01
Procedures
Recruitment of participants targeted both male and female undergraduate students over the age of 18. In January 2008, undergraduate students from lower-level psychology courses were informed of the opportunity to receive extra course credit by participating in experiments carried out by the Department of Psychology at a major state university in the Pacific Northwest. Students were able to sign up for a wide range of studies through an online subject pool system. The present study was listed as a self-report questionnaire study that aimed at investigating contextual variations of mindfulness. No exclusion criteria were specified. Data collection was completed in March 2008.

Five undergraduate research assistants were trained to run participants and were responsible for data collection under the direct supervision of the undergraduate principal investigator. Packets of IRB-approved questionnaires were randomly distributed to all undergraduate students who agreed to participate. All participants were then given an hour to complete the questionnaires. Participants were not required to answer all questions to receive extra course credit and might leave anytime during the experiment.

Data Analyses
To evaluate the roles of gender and context on mindfulness scores, we conducted a 2 (gender) x 3 (context) within-subject ANOVA. To evaluate the roles of ethnicity and context on mindfulness scores, we conducted a 2 (ethnicity) x 3 (context) within-subject ANOVA. To examine the relationships between mindfulness scores across contexts, we computed bivariate correlations. To understand the relationships between mindfulness and other psychological constructs, we conducted three multiple regressions with each looking at mindfulness in a particular context.

Results
Gender by Context
Descriptive statistics for males and females are presented by contexts in Table 1. A 2 (gender) x 3 (context) within-subject ANOVA showed a significant context main effect ($F(2,199) = 13.12, p < .001$) and a significant gender by context interaction effect ($F(2,199) = 4.76, p = .01$). The main effect of gender was not statistically significant, $F(1,200) = .65, p = .42$.

As expected, differences in mindfulness scores across contexts were significant among females only. No significant differences in mindfulness scores across contexts were observed among males.

Ethnicity by Context
Descriptive statistics for Caucasians and Asians are presented by contexts in Table 2. A 2 (ethnicity) x 3 (context) within-subject ANOVA showed a significant ethnicity main effect ($F(1,163) = 7.10, p = .008$), and a significant context main effect ($F(2,162) = 12.86, p < .001$). The ethnicity by context interaction effect

| TABLE 3 |
| Intercorrelations Between Mindfulness Scores Across Unspecified, Interpersonal, and Task-Oriented Contexts |

<table>
<thead>
<tr>
<th>Context</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Unspecified</td>
<td>—</td>
<td>0.678***</td>
<td>0.714***</td>
</tr>
<tr>
<td>2. Interpersonal</td>
<td>—</td>
<td>0.596***</td>
<td></td>
</tr>
<tr>
<td>3. Task-Oriented</td>
<td>—</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. *** $p < .001$

| TABLE 4 |
| Multiple Regression Analysis on the Relationships Between Mindfulness Score Measured in Unspecified Context and Other Psychological Variables |

<table>
<thead>
<tr>
<th>Variable</th>
<th>$B$</th>
<th>$SE_B$</th>
<th>$\beta$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independence</td>
<td>0.62</td>
<td>0.12</td>
<td>0.35***</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Interdependence</td>
<td>-0.21</td>
<td>0.12</td>
<td>-0.12</td>
<td>0.085</td>
</tr>
<tr>
<td>Negative Mood</td>
<td>-0.82</td>
<td>0.03</td>
<td>-0.17*</td>
<td>0.018</td>
</tr>
<tr>
<td>Anxious Attachment Style</td>
<td>-0.10</td>
<td>0.06</td>
<td>-0.12</td>
<td>0.121</td>
</tr>
<tr>
<td>Avoidant Attachment Style</td>
<td>-0.12</td>
<td>0.06</td>
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*Note. * $p < .05$, *** $p < .001$
was not significant ($F(2,162) = .61, p = .54$). Contrary to our third hypothesis, Caucasians ($M = 133.42$) reported higher mindfulness scores than Asians ($M = 127.96$).

Specifically, Caucasians scored significantly higher on mindfulness than Asians in all contexts. Exploratory analyses showed that higher levels of negative moods were reported among Asians ($M = 90.16$) than in Caucasians ($M = 74.94$), $t(164) = 3.07, p = .003$.

**Relationships Between Mindfulness Scales and Other Psychological Constructs**

Mindfulness scores across unspecified, interpersonal, and task-oriented contexts were intercorrelated (Table 3). Multiple regression analyses showed that independence was the only psychological construct that was associated with mindfulness in all contexts. In the unspecified context, mindfulness was positively associated with independence and negatively associated with negative mood and avoidant attachment style (Table 4). In interpersonal contexts, mindfulness was positively associated with independence and social support while negatively associated with both anxious and avoidant attachment styles (Table 5). In task-oriented contexts, mindfulness was positively associated with independence and social support while negatively associated with negative mood (Table 6).

**Discussion**

As hypothesized, statistically significant individual differences in mindfulness across unspecified, interpersonal and task-oriented contexts were observed. Results provide preliminary evidence to suggest that mindfulness may demonstrate a state-like quality under certain conditions. Consistent with our second hypothesis, contextual variations of mindfulness were found only among females. This suggests that females are more influenced by contextual differences in the degree to which they are aware of the present moment in a nonjudgmental manner than males. As predicted, females showed higher levels of mindfulness in inter-

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*Note.* $p < .05$, $\ast$ $p < .01$

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*Note.* $p < .05$, $\ast$ $p < .01$
personal contexts than in unspecified and task-oriented contexts. However, the reason for such differences does not seem to relate to interdependence. Therefore, the theory behind our second hypothesis requires revision and calls for future investigation.

Contrary to our third hypothesis, Asians did not show higher levels of mindfulness in interpersonal contexts than Caucasians. In contrast, Caucasians reported higher levels of mindfulness than Asians in interpersonal contexts, as well as task-oriented and unspecified contexts. One potential explanation is that items on the KIMS are more focused on internal states rather than external stimuli. Such tendency favors Caucasians, who are often thought of as more independent and self-focused, to score higher than Asians (Markus & Kitayama, 1991). As exploratory analyses showed that Asians tended to report more negative mood states than Caucasians, another possible reason is that lower levels of mindfulness among Asians were either mediated or moderated by higher levels of negative moods among these individuals. However, these explanations are speculative in nature and should be considered as preliminary hypotheses only.

Given that the context-specific mindfulness questionnaires used in this study were designed to follow the original KIMS as closely as possible except specifying our three particular contexts of interest, it is reasonable to observe correlations in mindfulness scores across unspecified, interpersonal, and task-oriented contexts. Multiple regressions, however, showed that mindfulness as measured in these contexts associated with other psychological variables in different ways. In particular, several patterns can be observed and are worth noting. First, mindfulness is associated with social support in interpersonal and task-oriented contexts but not in unspecified contexts. Second, mindfulness is associated with negative mood in unspecified and task-oriented contexts but not in interpersonal contexts. Third, mindfulness is associated with avoidant attachment style in unspecified and interpersonal contexts but not with task-oriented contexts. Fourth, mindfulness is associated with anxious attachment only in interpersonal contexts but not with unspecified contexts. Lastly, mindfulness is associated with avoidant attachment only in interpersonal contexts but not in unspecified and task-oriented contexts. These patterns provide preliminary evidence to suggest that distinct context-specific mindfulness constructs are present. Future studies should refine context-specific measures of mindfulness, by elaborating distinct features of mindfulness in, for example, interpersonal and task-oriented contexts to replicate our study with better mindfulness measures.

Based on our results, several implications are suggested. Theoretically, significant contextual variations of mindfulness challenge the conventional assumption that mindfulness is a dispositional trait that remains constant across different contexts. These findings suggest the potential importance of developing contextualized mindfulness assessments. Clinically, results of this study inform clinicians that contextual variations of mindfulness are more prominent among females than males. Findings also suggest that Caucasians are generally more aware of the present moment in a non-judgmental manner across different contexts. By understanding variations of mindfulness across genders and cultures, clinicians may become more sensitive to the specific needs of people in different gender and ethnic groups. Additionally, significant contextual variations of mindfulness underscore the need for clinicians to teach clients how to generalize mindfulness techniques from a clinical setting to everyday life, helping clinicians to deliver optimal mindfulness-based interventions. Taken together, the present study largely supports the value of evaluating contextual variation in mindfulness.

Nevertheless, the results of this study should be interpreted with caution because of the study’s limitations. First, this study relied on the self-report method and data collected might be biased. Second, the data were cross-sectional in nature and no causal relationship can be concluded. Third, data were collected using an undergraduate sample and potential variations of mindfulness across age groups cannot be evaluated. Thus, the generalizability of these findings to other age groups remains to be tested. Fourth, this study did not distinguish between Asian Americans who were born in the United States and Asians who immigrated to the United States after they were born. To address the last two limitations, future studies should refine the definitions of different ethnicities and use a sample that includes participants from different age groups.

Despite its limitations, this study is, to our knowledge, the first systematic empirical evaluation of contextual variations in mindfulness. Specifically, the present study adds to the current literature by clarifying the nature (dispositional trait vs. variable state) of mindfulness. In the past few decades, mindfulness skills training has become an indispensable part of numerous clinical interventions, including mindfulness-based stress reduction (Kabat-Zinn, 1982, 1990), mindfulness-based cognitive therapy (Teasdale, Segal, & Williams, 2000), dialectical behavior therapy (Linehan, 1993a, 1993b), acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999) and mindfulness-based relapse prevention (Wiikewart, Marlatt & Walker, 2005). In light of the growing interest in mindfulness research, an improved understanding of the nature of mindfulness is hoped to bring about optimal efficiency in delivering mindfulness-based interventions.
References


Effects of Perceived Religiosity on Judgments of Social Competence Toward Individuals With Mental Illness

This study examined mental illness stigma and its relationships to 1) type of mental disorder and 2) the social involvement of those with mental illness. Fifty college subjects were asked to read vignettes describing a character who had either schizophrenia or depression, and who was depicted as either active in their church, active in the community, or whose activities were not mentioned. Perceptions of the characters' social competence were measured using a Judgment of Social Competence Questionnaire. Results demonstrated a significant effect for type of social involvement on judgment of social competence, but no such effect for type of mental disorder. Due to the occurrence of the Virginia Tech Massacre in the middle of the study, the effect of this event on stigmatizing attitudes was also examined.

In recent years, the stigma of mental illness has been increasingly recognized by the public, and people’s understanding of mental illness has been improving (Link & Phelan, 1999). However, stereotypes of dangerousness and the desire for social distance towards the mentally ill persist (Link and Phelan, 1999). Previous studies and surveys indicate that individuals with mental illness report stigmatization by families, communities, and churches, as well as mental health service providers and agencies (Campbell & Schraiber, 1989; Wahl, 1999). In a survey of people with psychiatric disabilities, Campbell and Schraiber (1989) found that 52% of participants indicated they had been discriminated against because they received mental health services. Also, 41% indicated that others treated them differently all or most of the time after becoming aware of their psychiatric diagnosis or treatment status. Negative public attitudes, stereotypes, and misconceptions can severely impede the psychological well-being of those with mental illness by adding extra emotional burdens of anger, hurt and degradation, as well as hindering their quality of life and treatment outcome (Link & Phelan, 1999; Nolan, 2000).

Three theoretical models have been identified to explain mental illness stigma: socio-cultural perspectives (i.e., stigmatizing attitudes develop to justify existing community injustices), motivational biases (stigmatizing attitudes develop to meet basic psychological need) and social cognitive theories (stigmatizing attitudes are understood as knowledge structures that develop from community experience) (Corrigan, 1998). Of these three, social cognitive theories are believed to offer the best theoretical support. One example of a social cognitive model is attribution theory, which examines causes of the mental disorder as perceived by the public (Corrigan et al., 2000).

Further, we know that mental illness has a diverse spectrum of types, severity and symptoms. Thus, it is important to know whether the public differentially stigmatizes psychiatric disorders according to the characteristics of the illness and perceptions of illness-causing factors. Corrigan et al. (2000) found that certain mental disorders are perceived as more self-attributed, less worthy of pity, more dangerous and worse prog-
nostically than others. For example, schizophrenia is viewed more negatively and has a higher stigmatized label than depression (Corrigan et al., 2000). The purpose of the present study is to further examine how the public differentially stigmatizes disabilities within the psychiatric spectrum by specifically looking at schizophrenia (a highly stigmatized disorder) and depression (a lowly stigmatized disorder). In addition, we explored whether the perception of religious support for the people with mental illness would have an impact on stigmatizing attitudes.

The relationship between religion and mental health has been of continued interest in both psychology and psychiatry. Previous studies have tried to examine the possible link between religion and mental illness; however, the results are often mixed and contradictory (Lewis, 2001). Some studies have shown a positive relationship between religiosity and mental-health (Chamberlain & Zika, 1992, as cited in Lewis, 2001); some have shown a negative relationship (Batson & Vennis, 1982, as cited in Lewis, 2001), while others have shown almost no relationship (Bergin, 1983, as cited in Lewis, 2001). For example, in Chamberlain & Zika’s study (as cited in Lewis, 2001), religion is considered as having a healing effect that positively influences psychological well-being through giving a sense of meaning in life. However, other evidence suggests that religion fosters poorer mental health in terms of promoting obsession and rigidity (Yossifova & Lewenthal, 1999). Despite the overall ambiguity, there does seem to be a cultural stereotype in regards to religion and mental health (Lewis, 2001). The present study aimed to examine whether the religiosity of someone with mental illness, represented by religious social involvements, affected attitudes regarding the social competence of the person being judged.

According to Hayward and Bright (1997), disruption of social interaction is considered to be one of the four possible root causes of people’s stigmatizing views towards the mentally ill. Many people perceive individuals who suffer from mental illness as not fitting into normal patterns of social interaction and not following accepted social rules (Hayward & Bright, 1997). People often feel uneasy interacting with individuals with mental illness. This uneasiness may in part stem from their own preconceived stereotype that individuals with a mental illness have poor social skills. Thus, in this study, we used a questionnaire to assess perceptions of social competence in order to indirectly measure people’s stigmatizing attitudes towards the mentally ill. This objective approach was expected to minimize demand characteristics and effects of social desirability among subjects.

According to the Corrigan et al. (2000) study using attribution theory, people with schizophrenia are more negatively stigmatized than those with depression. In addition to manipulating the variable of religious involvement, the vignettes described someone with either schizophrenia or depression. Specifically, three hypotheses were proposed. First, we hypothesized that a person with schizophrenia (a highly stigmatized mental disorder) would be viewed as less socially competent than a person with depression (a lowly stigmatized mental disorder). Second, we hypothesized that individuals with mental illness would be perceived as being more socially competent if they engaged in religious activities (church involvement) compared to individuals who engaged in either non-religious activities (community involvement) or whose social involvements were not mentioned. Lastly, we hypothesized that religious involvement would have a larger impact on perceived social competence of a person with depression than on the individual diagnosed with schizophrenia.

**Method**

**Participants**

Fifty undergraduate students at a private faith-based university in the Southeast volunteered for this study in order to earn extra credit in one of several social science classes. All participants were 19 years of age or older. There were 42 female participants, and 8 male participants. All of the 50 students who participated in the study completed the measure.

**Material**

Participants were given a packet containing one of six vignettes and a Judgment of Social Competence Questionnaire. Each vignette described one character who was diagnosed with either schizophrenia or depression. Depending on the specific diagnosis, the DSM-IV definition of either schizophrenia or depression was given preceding each vignette. Each character’s social involvement (i.e., religious, community, or none) was also described. For example, the character who engaged in religious activities was described as “attending Sunday school and worship services every Sunday, joining Bible classes in church every Wednesday night, praying daily and engaging very actively in a variety of other church fellowships and services.” The character who engaged in non-religious community activities was described as “going to the local community center every Sunday to watch movies and have discussions, taking a public health class every Wednesday night, journaling daily about their everyday lives and engaging very actively in a variety of other community activities and services.” No social activities were mentioned for the character in the control group. Thus, this 2 X 3 (mental illness X social involvement) factorial design
produced six conditions: schizophrenia with religious activity (S/R) (n=9), schizophrenia with community activity (S/C) (n=8), schizophrenia with no mentions of activities (S/N) (n=8), depression with religious activity (D/R) (n=9), depression with community activity (D/C) (n=8), and depression with no mentions of activities (D/N) (N=8).

The Judgment of Social Competence Questionnaire was designed by the experimenters to assess participants’ perceptions of social skills for the character in each vignette. This questionnaire served as an indirect approach to measure participants’ stigmatizing attitudes towards the mentally ill. It consisted of fourteen questions related to tasks of social functioning. Participants were asked to rate how likely the character was able to fulfill these tasks on a 5-point Likert scale (1=not at all likely, 5=definitely). In addition, all questions were purposefully phrased in third person to minimize social desirability and demand characteristics among the subjects. Typical items included “How likely is it that C.R. will approach others positively?” and “How likely is it that C.R. would be able to share and discuss ideas comfortably in front of other people?”

A demographic survey was also used to assess subjects’ gender, age, class, major, religious belief, and their opinions about mental illness stigma. They were also asked about their perception of the characters’ religiosity in the vignette. These answers served as a manipulation check for the experiment.

Procedure
In order to minimize the possibility of demand characteristics, on the sign-up sheets used to recruit participants, the study was titled “Mental Illness and Social Involvement.” Packets containing one vignette and a Judgment of Social Competence Questionnaire were randomly distributed to participants. Participants were asked to rate how likely the character was able to fulfill these tasks on a 5-point Likert scale (1=not at all likely, 5=definitely). In addition, all questions were purposefully phrased in third person to minimize social desirability and demand characteristics among the subjects. Typical items included “How likely is it that C.R. will approach others positively?” and “How likely is it that C.R. would be able to share and discuss ideas comfortably in front of other people?”

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Results

Preliminary Analysis
Prior to testing our hypotheses, we first examined the internal consistency of the items in the Judgment of Social Competence Questionnaire. A mean Cronbach’s alpha coefficient of .89, across the six conditions, indicated of the questionnaire was .89 across the 6 conditions, demonstrating high inter-item reliability. Thus, we were able to use the sum total of the item scores in the questionnaire as a single dependent variable in statistic analysis. Not including three filler questions, there were a total of eleven questions used in the statistical analysis with a maximum possible score of 55.

In order to determine whether our manipulation of religiosity was successful, we examined the ratings of one particular question in the demographic survey - “How religious do you perceive the character in the vignette to be (1- not at all religious, 5 – highly religious)?” One-way ANOVA compared the mean ratings of this question among the three types of social involvement conditions (religious vs. community vs. none).

As expected, there was a significant difference for this variable, $F(2, 47) = 16.768$, $p < .01$, and Tukey post hoc analysis revealed that characters who engaged in church activities ($M = 4.11$, $SD = .47$) were rated significantly higher in religiosity than characters who engaged in community activities ($M = 3.19$, $SD = .75$, $p < 0.01$), and significantly higher than those whose activities were not mentioned ($M = 2.75$, $SD = .86$, $p < 0.01$). No significant difference was found between the community condition and the no-mention condition ($p = 0.085$). These statistics indicate successful manipulation of the level of religiosity.

Analysis
A two-way ANOVA was conducted to analyze this 2 X 3 (mental illness X religiosity) factorial design. Contrary to our hypothesis, no significant difference in perceived social competence was found between characters who had schizophrenia ($M = 36.92$, $SD = 7.95$) and those
with depression ($M = 37.94, SD = 7.18$), $F(1, 48) = .325, p = .572$ (see Figure 1).

A significant difference in perceived social competence was found among the three types of social involvement, $F(2, 47) = 8.279, p = 0.001$ (see Figure 2). Tukey post hoc analysis revealed a significantly higher perception of social competence for the church involvement condition ($p = 0.01$) and the community involvement condition compared to the no-mention condition ($p < 0.01$); however, no significant difference was found between church and community involvement conditions ($p = 0.16$). Also, contrary to our hypothesis, no significant interaction was found in social competence ratings between types of mental illness and type of social involvement, $F(2, 47) = .272, p = .763$.

**Discussion**

Contrary to prior research (Corrigan, et al., 2000), only one of the hypotheses for this experiment was supported. A highly stigmatized mental illness did not produce a more negative perception about a character’s social functioning; a lowly stigmatized disorder did not add any favor to such perception. One possible explanation could be that the sample for this study shared a fairly specific and homogeneous background, i.e., all participants were college students who might have been exposed to educational information and learning materials related to mental disorders. These experiences could have provided them with a better understanding of and a more objective view towards different types of mental illness. Previous research has suggested that persons with a higher educational level and social class view the mentally ill more favorably (Link & Cullen, 1986). Furthermore, age can also be a factor in shaping attitudes toward the mentally ill. Previous studies have found that younger people tend to be more tolerant of the mentally ill than older people (Brockington, Hall, Levings & Murphy, 1993; Parra, 1985). As a result, our young participants, aged 18 to 22 years old, might have less negative attitudes toward people with severe mental disorder, such as schizophrenia, than older people in the public.

Similar perceptions toward people with depression and schizophrenia, as observed in this study, could suggest a change, across time, in the nature of stigma driven attitudes. Whereas “old-fashioned” prejudice may have been more blatant and hostile, efforts at eliminating stigma, while not totally successful, may have produced a new form of prejudice that are more subtle and ambivalent. For example, Chugh (2004) pointed out that “the discriminator aspires to and believes in a self-image that is non-discriminating, yet [s/he] does discriminate in certain situations” (p. 207). In order to investigate this possibility, it would be useful to use implicit, rather than explicit, measures to assess possible unconscious prejudice, or stigma, towards people with diverse forms of mental illness.

Even though there was a significant main effect for different types of social involvement, no significant difference in perceived social competence was found between characters who engaged in church activities and those involved in community activities. In terms of the mean ratings, characters who engaged in community activities were actually rated the highest on perceived social functioning. This finding is contrary to our original prediction that religious involvement would induce more favorable views on social competence of the mentally ill. One possible explanation might be the lack of specific descriptions of characters’ religious beliefs in the vignettes. In the vignettes, we only used the church activities that characters attend to imply their levels of religiosity. Even though the manipulation of religiosity appeared to be successful, more detailed and subjective information about characters’ religious beliefs might have led to support of the hypothesis regarding the impact of religious involvement on ratings of social competence. Another possible limitation in our study was that participants’ preexisting biases toward church and community activities were not determined. Though duration, frequency and characteristics of the activities were matched in both vignette conditions, it is possible that some participants considered

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**FIGURE 2**

Comparison of mean ratings of perceived social competence across three types of social involvement conditions: church involvement ($M = 38.39, SD = 7.59, n = 18$), community involvement ($M = 41.69, SD = 4.94, n = 16$), and no-mention condition ($M = 32.19, SD = 6.73, n = 16$).
activities held in churches to be formal and ceremonial with little social interaction with people. This could have produced perceptions in line with Yossifova and Lewenthal’s findings (1999) that religion is considered to foster poorer mental health in terms of promoting obsession and rigidity. On the other hand, community activities might be viewed as being entertaining and relaxing with many socializing opportunities.

The Virginia Tech Study
Midway through our data collection, on April 16, 2007, the tragic Virginia Tech Massacre occurred. When the identity of the killer was revealed, the public was introduced to the darkest side of mental illness. In addition to sympathy and lamenting, the stigma of mental illness might also have been activated and reinforced in society. While most acts of violence are not committed by individuals with mental illness, the stigma of mental illness can be fed by a belief in that relationship. Therefore, it is possible that this event could have served as a historical confound in our study. If that was the case, subjects who participated in the experiment after April 16 might have responded differently than those who participated prior to the Virginia Tech event. Since exactly half of our subjects participated before the event and half afterwards, we were able to run a statistical analysis to see if that event had a significant effect on perceptions of social competence of the character portrayed in our vignette.

First of all, we considered the Virginia Tech Massacre as a separate independent variable and examined the overall means of perceived social competence before and after the event. An independent samples t test was conducted but revealed no significant effect, \( t(49) = 0.959, p = 0.342 \). This finding suggested that the Virginia Tech event did not produce a historical confound in this study. In order to further explore the effect of this event, we added the Virginia Tech Massacre as a third independent variable with two levels, pre-shootings and post-shootings. A three-way ANOVA was conducted on this 2 x 3 x 2 (mental illness X social involvement X Virginia Tech) design. We hypothesized that the highly stigmatized characters in the vignettes would be judged more harshly on perceived social competence after the shootings than before the shootings. However, the addition of Virginia Tech as a third variable did not produce any significant main effect, \( F(1, 48) = 1.021, p = .319 \), and no significant interactions were found between this new variable and the two original variables, \( F(2, 47) = 0.462, p = .633 \). Additionally, we were curious about whether this shooting event would affect participants’ opinions about mental illness sufferers in some specific areas, especially in areas of social interaction and perceived dangerousness. We purposely chose four relevant questions to conduct this analysis. Two of the questions were from the demographic survey, which asked participants “How likely is it that you would be a friend of a person with a mental illness?” and “How likely is it that you would feel comfortable living near a person with a mental illness?” The other two questions came from the Judgment of Social Competence Questionnaire. These questions were “How likely is it that the character would pose a danger or threat to others?” and “How likely is it that the character would be avoided by others in the society?” Independent samples t tests were conducted to compare the mean ratings of these individual questions before and after the event. However, no significant effects were found on any of these opinion measures: willingness to be a friend \( (t(48) = .321, p = .749) \), willingness to live near \( (t(48) = .928, p = .358) \), danger \( (t(48) = -.842, p = .404) \), or avoidance \( (t(48) = .289, p = .774) \).

There are several possible explanations for a lack of effect relative to the Virginia Tech Massacre as either a separate variable or a third independent variable. First, there was only a short time gap between the event’s occurrence on April 16 and our third and fourth experimental trials, which were conducted on April 17 and April 20. At that time, participants might not have had enough time and information to fully process the event. Another possible factor might be that at the time of those two trials, the killer has not been identified in the media with any specific mental disorder. Participants might not have been able to associate the killer’s condition with schizophrenia when they participated. Moreover, making judgments about the social competence of the mentally ill only is an indirect way to assess mental stigma. Thus, even though the Judgment of Social Competence Questionnaire might be a strong test to measure the effect of perceived religiosity, it might not be sensitive enough to capture the effect of the Virginia Tech Massacre on people’s stigmatizing attitudes towards the mentally ill.

Though it is possible that failure to support certain hypotheses was the consequence of a relatively small sample (only 8-9 subjects for each vignette), the content of vignettes and the strength of the religiosity variable might be improved by describing the character’s religious beliefs rather than the church activities they attend. This will allow a more sensitive measure of the direct relationship between religion and mental illness stigma. Moreover, our results suggest that it is not the particular type of social involvement that matters, but perhaps the engagement in social activity itself that impacts people’s perceptions of the mentally ill. Corrigan and his colleagues (2001) found that contact with someone who shows symptoms of mental illness does more to reduce stigma than other anti-stigma strategies,
such as education or protest. It is possible that simply knowing that someone with mental illness is engaging in social activities offers a kind of vicarious contact. This would underscore a need for more positive portrayals of people with mental illness in the media, a need that has been addressed by United States Substance Abuse and Mental Health Services Administration (SAMSHA) with Voice Awards to recognize entertainment programming that writes “dignified, respectful, and accurate portrayals .. into their scripts, programs, and productions.” (Department of Health and Human Services, n.d.) The outcome and success of such an approach to the reduction of stigma is an area worth exploring as a way to encourage effective social acceptance to those who suffer from mental disorders.

References
APPENDIX

Judgment of Social Competence Questionnaire

(These are the questions subjects will be asked to complete after reading the scenario and definition of the disorder. The character’s name will be changed according to the disorder given.)

NOW ANSWER EACH OF THE FOLLOWING QUESTIONS ABOUT C.R. BY CIRCLING THE NUMBER THAT BEST DESCRIBES YOUR PERCEPTION OF C.R.

1. How likely is it that C.R. will approach others positively?
   
   Not at all likely
   Definitely

2. How likely is it that C.R. would be able to engage in an appropriate and intelligent conversation with others?
   
   Not at all likely
   Definitely

3. Is it likely that involvement in the church is beneficial for C.R.?
   
   Not at all likely
   Definitely

4. How likely is it that C.R. would interact nonverbally with others with smiles, waves, nods, and other positive gestures?
   
   Not at all likely
   Definitely

5. How likely is it that C.R. will pose a danger or threat to others?
   
   Not at all likely
   Definitely

6. Should other people who have this mental illness be encouraged to become active in a local church?
   
   Definitely Not
   Definitely

7. How likely is it that C.R. would be willing to help other people who are in crisis?
   
   Not at all likely
   Definitely

8. How likely is it that C.R. would be described by others as being a good listener?
   
   Not at all likely
   Definitely

9. How likely is it that C.R. would be able to respect and comply with authority figures in society?
   
   Not at all likely
   Definitely

10. How likely is it that C.R. would be considered an understanding and supportive friend?
    
   Not at all likely
   Definitely

11. How likely is it that C.R. would be able to share and discuss ideas comfortably in front of other people?
    
   Not at all likely
   Definitely

12. How likely it is that C.R. would be avoided by other people in the society?
    
   Not at all likely
   Definitely

13. How likely is it that C.R. displays the capacity for humor?
    
   Not at all likely
   Definitely

14. How effective is C.R.’s religious involvement in helping him cope with mental illness?
    
   Bad
   Excellent
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<td>Thelma Hunt Research Grants</td>
<td>October 1</td>
<td>Faculty, Graduate, Undergraduate</td>
<td>Three grants $3,000 each</td>
<td>Enables members to complete empirical research on a question directly related to Psi Chi.</td>
</tr>
<tr>
<td>Undergraduate Psychology Research Conference Grants</td>
<td>October 1</td>
<td>Sponsor(s) of local and regional conference</td>
<td>Up to $1,000 each (number varies)</td>
<td>Funding to defray cost of sponsoring local/regional undergraduate psychology conferences. Total grant money available is $15,000.</td>
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<tr>
<td>Graduate Research Grants</td>
<td>November 1 February 1</td>
<td>Graduate</td>
<td>Up to $1,500 each (number varies)</td>
<td>Funding to defray the cost of conducting a research project. Total grant money available is $20,000.</td>
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<tr>
<td>Undergraduate Research Grants</td>
<td>November 1 February 1</td>
<td>Undergraduate</td>
<td>Up to $1,500 each (number varies)</td>
<td>Funding to defray the cost of conducting a research project. Total grant money available is $35,000.</td>
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<td>Regional Research Awards</td>
<td>Deadlines Vary, Fall/Winter*</td>
<td>Graduate Undergraduate</td>
<td>$300 each (number varies)</td>
<td>Up to 78 awards presented for the best research papers submitted as Psi Chi posters for the regional conventions.</td>
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<tr>
<td>Danish National Faculty Advisor Award</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Travel expense to APA + Plaque</td>
<td>To one outstanding faculty advisor who best achieves Psi Chi’s purpose. Chapter nominations.</td>
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<tr>
<td>National Convention Research Awards</td>
<td>December 1</td>
<td>Graduate Undergraduate</td>
<td>$500 graduate $300 undergraduate</td>
<td>Up to 16 awards (8 grad, 8 undergrad) presented for the best research papers submitted for APA/APS conventions.</td>
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<td>Regional Chapter Awards</td>
<td>December 1</td>
<td>Chapter</td>
<td>Twelve $500 awards + Plaque</td>
<td>Presented to two chapters in each of six regions that best achieve Psi Chi’s purpose.</td>
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<tr>
<td>Regional Faculty Advisor Awards</td>
<td>December 1</td>
<td>Faculty Advisor (chapter nomination)</td>
<td>Six $500 awards + Plaque</td>
<td>To six outstanding faculty advisors (one per region) who best achieve Psi Chi’s purpose.</td>
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<tr>
<td>APA Science Directorate Internship &amp; Relocation Grant</td>
<td>January 15</td>
<td>Undergraduate</td>
<td>One grant up to $3,500</td>
<td>10-week paid summer internship in the Science Directorate assisting on a variety of projects; covers relocation expenses.</td>
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<tr>
<td>FBI NCAVC Internship Grants</td>
<td>February 1 June 1</td>
<td>Graduate Undergraduate</td>
<td>Two grants, up to $7,000 each</td>
<td>14-week unpaid FBI NCAVC internship to conduct research; grant covers living expenses.</td>
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<td>Bandura Graduate Research Award</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APS + Plaque + $yr APS Membership</td>
<td>Student submitting best overall empirical study. Co-sponsored by APS.</td>
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<td>Cousins National Chapter Award</td>
<td>February 1</td>
<td>Chapter</td>
<td>One $3,500 award + Travel to APA + Plaque</td>
<td>Presented to one chapter nationally that best achieves Psi Chi’s purpose.</td>
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<td>Newman Graduate Research Award</td>
<td>February 1</td>
<td>Graduate</td>
<td>Travel expense to APA + Plaque + $yr journal subscription</td>
<td>Student submitting best overall empirical study. Co-sponsored by APA.</td>
</tr>
<tr>
<td>Website Awards</td>
<td>February 1</td>
<td>Chapter</td>
<td>Three $200 awards</td>
<td>Presented to chapters with websites that are innovative aesthetic, and useful, and that advance Psi Chi’s purpose.</td>
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<td>APS Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Six $5,000 grants ($3,500/student + $1,500/ sponsor)</td>
<td>Provides opportunities to conduct research during the summer with sponsors who are APS members.</td>
</tr>
<tr>
<td>Summer Research Grants</td>
<td>March 1</td>
<td>Undergraduate</td>
<td>Fourteen $5,000 grants ($3,500/student + $1,500/ sponsor)</td>
<td>Provides opportunities to conduct research during the summer at nationally recognized research institutions.</td>
</tr>
<tr>
<td>Kay Wilson Leadership Award</td>
<td>April 1</td>
<td>Chapter President (chapter nomination)</td>
<td>One $500 award + Travel to APA + Plaque</td>
<td>Award to one chapter president who demonstrates excellence in the leadership of the local chapter.</td>
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<td>Alyn &amp; Bacon Psychology Awards</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000 2nd place—$650 3rd place—$350</td>
<td>Awards for the best overall empirical study submitted.</td>
</tr>
<tr>
<td>Erlbaum Awards in Cognitive Science</td>
<td>May 1</td>
<td>Graduate Undergraduate</td>
<td>1st—$500 (Graduate) 1st—$500 (Undergraduate)</td>
<td>Awards for the best empirical research in cognitive science.</td>
</tr>
<tr>
<td>Guilford Undergraduate Research Awards</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000 2nd place—$650 3rd place—$350</td>
<td>Awards for the overall best research papers submitted.</td>
</tr>
<tr>
<td>Faculty Advisor Research Grants</td>
<td>June 1</td>
<td>Faculty Advisor</td>
<td>Twelve $2,000 grants</td>
<td>Awards for two faculty advisors per region to conduct empirical research.</td>
</tr>
<tr>
<td>Model Chapter Awards</td>
<td>June 30</td>
<td>Chapters</td>
<td>$100 each chapter</td>
<td>All chapters meeting the five criteria will receive $100.</td>
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</tbody>
</table>

Awards and grants are submitted online at the Psi Chi national website at www.psichi.org

Deadlines for 2008–09 regional student research submissions:
- Eastern - November 15, 2008
- Midwest - November 1, 2008
- Rocky Mountain - January 16, 2009
- Southeast - October 10, 2008 (intent) & November 10, 2008 (abstract)
- South - November 24, 2008
- West - November 15, 2008
Research Awards

Regional Research Awards
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Regional Research Awards. Cash awards of $300 each are presented to students submitting the best research papers to Psi Chi sessions at regional conventions. The number of awards in each region varies based on the size of the region; a total of 76 awards of $300 each are available for the academic year. Award monies are distributed at the conventions following the presentations. Deadlines for submissions vary according to region and sometimes from year to year; check your fall regional mailing or the Psi Chi website for details.

National Convention Research Awards | Dec 1
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the National Convention Research Awards. Cash awards of $300 for undergraduates and $500 for graduates are presented to students submitting the best research for Psi Chi sessions at the APA and APS national conventions. Up to 16 awards are given: 8 for the APA Convention and 8 for the APS Convention. Award monies are distributed at the conventions following the presentations.

Bandura Award | Feb 1
All psychology graduate students who are Psi Chi members and graduate student affiliates of the Association for Psychological Science (APS) are eligible to submit their research for the Psi Chi/APS Albert Bandura Graduate Research Award. A maximum of 3 grants, each of $1,000, is awarded annually to support research projects. Applications are due April 1. The winner is awarded a $1,000 grant.

Newman Award | Feb 1
All psychology graduate students are eligible to submit their research for the Psi Chi/APA Edwin B. Newman Graduate Research Award. The winner receives the following: (1) travel expenses to attend the APA Convention to receive the award, (2) a three-year membership in APS, including subscriptions to all APS journals, and (2) two engraved plaques, one for the winner and one for the winner’s psychology department as a permanent honor to the winner. In addition, the abstract of the winning paper, as well as a photograph and brief biography of the winner, are published in Eye on Psi Chi. This award is presented during the APS opening ceremony at the APS National Convention.

Allyn & Bacon Awards | May 1
The Psi Chi/Allyn & Bacon Psychology Research Awards, cosponsored by publisher Allyn & Bacon Publishers, are open to all undergraduate Psi Chi members and are awarded to those who demonstrate the best overall empirical research papers. The awards are $500 for first place, $450 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.

Erbbaum Awards | May 1
The Psi Chi/Erbbaum Awards in Cognitive Science, cosponsored by publisher Lawrence Erbaum Associates, Inc., are open to all Psi Chi undergraduate and graduate Psi Chi members and are awarded to those who submit the best overall empirical studies in the area of cognitive science. The awards are $500 for first place, $450 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top two winners, are published in Eye on Psi Chi.

Guilford Awards | May 1
All Psi Chi undergraduate members are eligible to submit their research for the Psi Chi/L. P. Guilford Undergraduate Research Awards. Cash awards are $1,000 for first place, $650 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.

Research Grants

Hunt Research Grants | Oct 1
All Psi Chi student and faculty members are eligible to apply for a Thelma Hunt Research Grant. Up to three grants of up to $3,000 each are presented annually to enable members to complete empirical research that addresses a question directly related to Psi Chi. Unlike other national Psi Chi award/grant programs, the Hunt Grants focus on research directly related to the mission of Psi Chi.

SuperLab Research Grants | Oct 1
All undergraduate and graduate Psi Chi members are eligible to apply for these research grants. The purpose of this program is to provide annual grants to aid one undergraduate and one graduate student in conducting computer-based research. Grant winners receive a copy of SuperLab experimental lab software and a response pad from Cedrus®.

Undergraduate Psychology Research Conference Grants | Oct 1
The purpose of this program is to provide funds for local/regional undergraduate psychology research conferences. Funding is intended for conferences that will invite student research presenters from at least three schools in the area and will notify all Psi Chi chapters in the geographic area of the conference. The maximum grant for each conference is $1,000.

Graduate Research Grants | Nov 1 & Feb 1
All graduate Psi Chi members are eligible to apply for these undergraduate research grants. The purpose of this program is to provide funds for members to defray the cost of conducting a research project. Applicants may request up to $1,500 for each project. A total of $10,000 has been allotted for this student grant program.

Undergraduate Research Grants | Nov 1 & Feb 1
All undergraduate Psi Chi members are eligible to apply for these undergraduate research grants. The purpose of this program is to provide funds for members to defray the cost of conducting a research project. Applicants may request up to $1,500 for each project. A total of $45,000 has been allotted for this student grant program.

APA Science Directorate Internship & Relocation Grant | Jan 15
All undergraduate and graduate Psi Chi members are eligible to apply for this internship. The purpose of this program is to provide one undergraduate student experience in science administration through a summer internship with APA. The Science Directorate pays approximately $300 per week, while Psi Chi awards up to an additional $3,500 for living and relocation expenses.

FBI NCAVC Internship Grants | Feb 1 & June 1
All undergraduate and graduate Psi Chi members who are accepted as FBI NCAVC interns are eligible to apply for this internship grant. The purpose of this program is to provide annual grants to aid two Psi Chi interns. The FBI NCAVC Internship Research at the FBI NCAVC. Two grants up to $7,000 will be awarded annually for the 14-week unpaid position.

APS Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of APS. This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards six $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these summer research grants (research must be conducted while still an undergraduate, not after graduation). The purpose of this program is to provide funds for members to conduct summer research at nationally recognized research institutions. Psi Chi will award 14 grants of $5,000 (a stipend of $3,500 to the Psi Chi student plus $1,500 to the sponsoring faculty member at the research institution each year).

Cousins Award | Feb 1
All Psi Chi/Ruth Hubbard Cousins National Chapter Award is presented annually to one chapter advisor. The award is intended to recognize a chapter advisor’s efforts on behalf of Psi Chi. Winning Psi Chi chapter of the year receives $500 and a plaque.

Model Chapter Awards | June 30
Model Chapter Awards of $100 each are presented annually to recognize and reward Psi Chi chapters that consistently maintain outstanding records of membership inductions, chapter correspondence, service projects, and other criteria associated with being an outstanding chapter. All chapters submitting evidence of meeting these criteria are designated as winners.

Chapter and Advisor Awards

Denmark Award | Dec 1
The Psi Chi/Florence L. Denmark National Faculty Advisor Award is presented annually to the one Psi Chi faculty advisor who best achieves Psi Chi’s purpose. The award includes (1) travel expenses to attend the Psi Chi/APA National Convention to receive the award and (2) an engraved plaque. The award is intended to recognize Psi Chi faculty advisors for their outstanding service to the chapter and to Psi Chi.

Regional Chapter Awards | Dec 1
All Psi Chi Regional Chapter Awards provide annual recognition for two chapters in each region that best achieve Psi Chi’s purpose. The winning Psi Chi chapter of the year receives a check for $500 and a plaque to display in the winning chapter’s department. The awards are intended to perpetuate the chapters, to identify chapters as role models, and to promote the purposes of Psi Chi.

Regional Faculty Adv Awards | Dec 1
This award is presented annually to one Psi Chi faculty advisor from each region who best achieves Psi Chi’s purpose. The award is to recognize and reward actively involved chapter advisors. The winning faculty advisor from each region will receive $500 and a plaque.
Psi Chi
Journal of Undergraduate Research

The Psi Chi Journal of Undergraduate Research is a national, fully reviewed, quarterly journal dedicated to the publication of undergraduate student research. All active Psi Chi chapters receive one complimentary subscription to the journal. We encourage each chapter to see that an additional subscription is obtained for the school library and that other organizations and interested individuals are made aware of its availability. Every effort has been made to provide a high-quality publication and yet offer the journal at affordable subscription rates to ensure its availability to all interested students, faculty members, and institutions. Back issues and bulk orders for classroom use are also available.

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