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Published quarterly by Psi Chi, The National Honor Society in Psychology
Psi Chi
Journal of Undergraduate Research

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The Psi Chi Journal of Undergraduate Research (ISSN 1089-4136) is published quarterly in one volume per year by Psi Chi, Inc., The National Honor Society in Psychology, 407 East 5th Street, Suite B, Chattanooga, TN 37403-1823.

Subscriptions are available on a calendar-year basis only (Spring—Winter). U.S. rates are as follows (four issues):
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ALTHOUGH MOST PSYCHOLOGISTS ARE NATURALLY curious and truly enjoy conducting and publishing their research, many "must" do so for job security. On the other hand, publishing your research as an undergraduate is not necessary for graduation or to meet class requirements, and there are few immediate rewards for the endeavor. Moreover, publishing your work is not an easy thing to do, and even the best scientists and most prolific researchers will acknowledge the difficulty and frustration inherent in the process. For example, you might start out with an interesting empirical question and find that it mutates into a monster that controls your life. You will put in more time, energy, and effort than could possibly be fairly compensated by course grades or independent study hours. You may miss countless social events and instead come to know librarians on a first-name basis. You will be subject to the whims of research participants and the even more capricious dictates of computer data analysis programs. Constant meetings with your advisor might leave you shaking your head and feeling as though you will never get things right. And then you might take that last step to send your work out to a journal, carefully following a multitude of (overly) picky style and format directions. And the worst is yet to come... you will receive the reviews of your work, and you will discover that a number of people have poked holes in your ideas, critiqued your writing, and generally found that your research is not as important as you thought. Your self-esteem will tumble, and you will wonder how these "experts" could be so ignorant of the clear points you were trying to make. After changes to your approach in your paper, rearrangement of thoughts and writing, further data analysis, more trips to the library, increased business for the postal service as you send and receive manuscripts and letters, and many, many months... your work just might be published.

Frankly, this does not sound like anyone's idea of fun. So why do it? Why take the extra step to get your research published?

Publishing your undergraduate research provides two types of rewards: The first reward is the acquisition and refinement of skills and traits that will aid you in your pursuit of graduate training and employment and in your understanding of daily events. The

Author note. I thank Kathy Walter for her ideas and review of this editorial. In addition, I am grateful to all of my students, past and present, who have helped me better understand the rewards of undergraduate publications and who have shown me firsthand the benefits of such endeavors.

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second type of reward is intrinsic and comes from doing meaningful work, the value of which cannot be measured with a course grade. You will find inherent satisfaction in doing—and publishing—your research.

Both practical and practicable skills for graduate school come from publishing your undergraduate work. A firm background in statistics and methodology is desired more than any particular course for most graduate programs (Lawson, 1995) because of the usable skills that emerge from having taken these courses and because the research and writing experience in psychology signals an understanding of the empirical values to which the discipline is committed (Madigan, Johnson, & Linton, 1995). Moreover, research experience as an undergraduate is as important to graduate school admissions committees as is a personal statement (Landrum, Jeglum, & Cashin, 1994). For doctoral programs, the importance of research experience is on par with the personal interview and generally outweighs work, clinical, and personal activities. Given that most (87%) PhD programs and many (58%) master’s programs offer research assistantships to graduate students (Norcross, Hanych, & Terranova, 1996), but that there may be competition for these slots, your research experiences will provide you an advantage in obtaining these positions, which will help fund your education. Thus, a publication as an undergraduate quickly tells graduate schools that you have extensive experience with research, which sets you apart from those candidates who do not.

In addition, most graduate schools train their students to be researchers, and therefore desire students who understand from experience basic research design, methodology, statistical procedures, and computer uses. One difficult lesson learned in a graduate program is that “conducting a study” does not mean one design conceptualized, one set of participants, one pass through the data analysis process, and one final draft of a paper. In graduate school you will learn that a research design will be changed and criticized, the data collection process is not quick, data analysis is not a one-shot deal, and that a draft of a paper is merely a first pass, as rewriting and editing will take far more time than the original writing. These lessons often defeat even the best of students, and having experienced all of these will signal graduate programs that you have the skills—as well as the mettle—to do research. Adjusting to the demands of graduate school is difficult enough, but is made easier by familiarity with certain computer programs, extensive experiences with literature searches, and practice with APA style.

On the practical level, publication of your research increases your marketability in the work world. The job market is glutted with college graduates, any of whom may be qualified and appropriate for a given job. However, few college graduates can show actual proof of having the skills and qualities that employers seek. It is one thing to say in a cover letter or during an interview that you can think clearly and analytically, that you can communicate, and that you can write. But it is quite another to demonstrate that you have the ability to think and communicate effectively by providing a publication. Even if employers are not cognizant of the nature and quantity of work that went into getting that publication, they will recognize that there is something different about you and that you are capable of employing the skills necessary to effectively execute most job tasks.

More important than showing employers you have learned computer skills, can think analytically, and can communicate with others, a publication at the undergraduate level shows potential employers you have the personal characteristics necessary for success. In fact, such qualities may be far more important than skills, which can be acquired in training programs. However, the fortitude to tackle and complete difficult tasks, a proclivity for challenge, perseverance in the face of criticism, and the ability to learn from others and revise your thinking when necessary together indicate a professionalism and maturity that all employers seek. Such qualities cannot be learned in training programs and few organizations have time to wait for these traits to develop on their own.

Beyond graduate school and the world of work, research will sharpen your understanding of the world around you. Indeed, to think logically and avoid dogma, and to know how it is that empirical facts shape ideas, solve problems, and increase knowledge will help you become an informed citizen, astute consumer, and scientifically literate person (Miller, 1992). Consideration of the ethics involved in conducting research (particularly research that involves human participants) affords a sense of values and consideration in dealing with others. Finally, critical thought, higher-order analysis, and integration and synthesis of information are all necessary in life—whether you are buying a car, choosing a career, or standing in a voting booth. These abilities are honed through research and publication.

In addition to the development of skills and character traits, a second type of reward comes from publishing your undergraduate research. Research and publication can be intrinsically satisfying in and of itself, and there is, indeed, joy in knowledge for the
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sake of knowledge. There is a sense of pride and satisfaction that comes from pursuing and answering an empirical question and then communicating that information to others. Pick up a textbook in nearly any discipline, read a few sentences or a paragraph, and look for the cited name. What if that name were yours? In addition to the pride and inherent value your research will bring, your research may clarify an existing question, start or continue work that solves problems, stimulate the interest of others, or propose more questions for us to ask and answer. Most importantly, publishing your undergraduate research increases your appreciation of scientific endeavors and allows you to be part of a select group of people—a company of lifelong learners, a community of people who have made a permanent and recognizable contribution to the body of human knowledge. For this reason alone, the extra mile is not a particularly long distance.

References


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Perceived Control and Distraction in the Cold-Pressor Test

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The cold-pressor test was used to evaluate the effectiveness of perceived personal control in the reduction of pain ratings. Forty-seven college students were divided into three groups. Participants in the perceived-control group were subjected to the cold-pressor test and were led to believe they could control the temperature of the water. Participants then rated the pain they experienced on a scale of 1–20. Their results were compared to a group using a distraction task (letter shadowing) and a traditional control group. Pain ratings for both the perceived-control and the distraction conditions were significantly (p < .05) lower than the control group. The mechanism for this reduction in pain intensity may be the stress-reducing properties of perceived control and its mediation of stress in the pain experience.

FROM THE MOMENT THE FIRST CHILD WAS BORN until the last person ceases to walk the earth, pain has been, and will be, an inherent part of the existence of humanity. Over the centuries considerable attempts have been made to understand and control pain; yet many answers lie undiscovered. Many research studies regarding pain perception and mechanisms of pain control (e.g., Loeser, 1989; Marino, Gwynn, & Spanos, 1989; McCaul & Malott, 1984) were conducted during the last 100 years.

Loeser (1989) postulated four conceptual levels for evaluating pain: (a) Nociception, which involves potentially tissue damaging thermal or mechanical energy impinging upon specialized nerve endings; (b) Pain, which is an unconscious mental interpretation of tissue damage; (c) Suffering, which is a negative affective response generated in higher nervous centers linked to stimuli such as pain, stress, anxiety, or fear; (d) Pain Behavior, which is simply any behavior generated by an individual that is understood to reflect the presence of the aforementioned components of pain as a whole. It is important to note that Loeser believes suffering is a component of, not just a result of, pain. Because factors such as stress influence the suffering of an individual, the suffering and, therefore, overall pain perception could be reduced by controlling these factors.

One method for decreasing stress in response to an aversive stimulus is personal control. Averill (1973) discusses three distinct types of personal control: (a) behavioral control, which is having direct control over the environment (stimulus modification); (b) cognitive control, or interpretation of events; and (c) decisional control, or having a choice among alternative events. These types of control have different effects on either inducing or reducing stress.

The most notable form of personal control in reducing the stress associated with an unpleasant stimulus has been behavioral control (Averill, 1973). When an individual can modify the nature of an aversive stimulus, whether by avoiding it or limiting its intensity, reduced stress reactions are shown (Averill, 1973). Because the process by which control was given to one group and not to others may have indirectly increased the stress levels in the no-control groups, Averill questioned the generality of this effect.

Corah and Boffa (1970) hypothesized that allowing participants to "escape" an aversive stimulus would produce lower discomfort ratings and reduced physi-
logical arousal. Further, a sense of control was created in the choice condition by giving participants the option of pressing a button to end the aversive stimulus. (This option was available in the "no escape" condition, but its use was discouraged.) Participants in the no-choice condition were instructed when to press the button, regardless of their discomfort. They hypothesized that giving participants a sense of control in a "no escape" condition would be as effective in discomfort and arousal reduction as in the "escape" condition. The results of their experiment supported both hypotheses. They found that participants in the choice group gave lower discomfort ratings and exhibited significantly lower skin conductance (lower arousal) than those in the no-choice group.

Corah and Boffa's (1970) data support the hypothesis that a sense of personal control over an aversive situation (behavioral control) will lead to lower stress. Applying this relationship to Loeser's (1989) model of pain, it is predicted that a sense of personal control should lead to a lower degree of perceived pain. This prediction is viable because personal control reduces stress, and stress reduction leads to a perceived decrease in the intensity of pain.

McCaul and Malott (1984) discussed the widely used method of distraction as a significant reducer of pain. There are two important principles that deal with the effectiveness of distraction in pain reduction. Distraction techniques that require more attentional capacity will be more effective because pain perception involves controlled, in addition to automatic, processes. Also, distraction has been found to have stronger effects on pain stimuli of low intensity. For the cold-pressor test (in which an individual places his/her hand or arm in a container of ice water, providing a graded painful stimulus), distraction has been proven to be effective only up to an immersion time of 2 min (McCaul & Malott, 1984). After this period of time the stimulus often becomes too intense and overrides the distraction task.

Previous studies indicate the distracting factor must be attentionally demanding to be effective in pain reduction. Thorn and Hansell (1993) administered the cold-pressor test to participants who were either given a specific time goal to stay immersed or just told to leave their hand in the water for as long as they could. They were not given a clock to look at, so those individuals who were given the time goal were required to count the time in their head. Although this is a mild form of distraction, it is not very attentionally demanding. There were no significant differences in reported pain.

Marino et al. (1989) studied the effectiveness of distraction versus imagery in pain reduction. The methods investigated were letter shadowing (a straightforward distraction technique) and self-propagated positive imagery (employed by participants to control their attention). Participants were subjected to the cold-pressor test. The results showed that distraction was as effective as imagery in reducing experimentally induced pain (Marino et al., 1989).

This effect has also been shown in other research (Devine & Spanos, 1990; McCaul & Malott, 1984). In each of these studies the cold-pressor test was used. It can safely be said that distraction techniques that are attentionally demanding are effective in reducing pain ratings with a mildly intense stimulus (McCaul & Malott, 1984). Given the effectiveness of distraction as a pain-reduction technique in the cold-pressor task, it can be used to gauge the effectiveness of other pain-reduction techniques.

There is support for the hypothesis that a sense of personal or behavioral control leads to reduced stress reactions and reduced levels of physiological arousal in response to an aversive stimulus (Averill, 1973; Corah & Boffa, 1970). According to Loeser's (1989) model of pain, stress is directly linked to the portion of pain by which the complete experience is perceived (suffering). If Loeser's theory holds true, an increase in an individual's sense of personal or behavioral control over an aversive stimulus should indirectly reduce the level of perceived pain by reducing the amount of stress produced in response to the painful stimulus.

The present experiment was designed to study the validity of this hypothesis. Namely, a sense of personal control over a painful stimulus (the cold-pressor test) should reduce pain ratings in response to that stimulus. In this study, participants were given the cold-pressor test and asked to rate the pain they experienced on a set scale. They were either given no pain-reduction technique (control), a distraction task to perform, or were led to believe they had control over the water temperature. If the findings of the previous studies are valid and generalizable, then the following effects should occur: (a) the distraction and the perceived-control groups should report lower mean pain ratings than the group given no pain-reduction technique, and (b) the distraction group and the perceived-control group should not differ significantly in their ratings.

Method

Participants

Forty-seven students (28 women, 19 men) from a small liberal arts college volunteered to participate in the study. Those students enrolled in psychology courses received extra credit for their participation.
Apparatus
The cold-pressor device consisted of a 5-gallon (18.93-L) rectangular tank insulated with 0.5-in. (1.27-cm) thick Styrofoam and covered in Formica (for aesthetic purposes). Attached to the tank was a small aquarium-style pump circulating the ice water between the cooling chamber, which contained the ice, and the immersion chamber, which contained only ice water. Underneath the immersion chamber was housed a nonfunctional heating coil that could be viewed by the participants. The two chambers were separated by a Plexiglas partition with holes at the bottom to allow for water circulation between the two chambers. A control box was used by members of the perceived-control group. There were two switches on the box. The switch on the right turned the circulation pump on and off, and the switch on the left was connected to an indicator light and a battery. The participants in the perceived-control group were told that it operated the heating coil, and when they switched the heating coil on, the light would come on indicating the heating process was engaged.

Rating Scale
The participants rated the level of pain experienced during immersion on a Likert-type scale that ranged from 0 (no pain) to 20 (most severe pain ever experienced). Other descriptors occurred at 1 (barely noticeable pain), 5 (moderate pain), 10 (so great I wanted to remove my hand), and 15 (excruciating pain). The participants were told the unmarked descriptors represented degrees of pain between the labeled markers. The scale was adopted from Spanos and Hewitt (1980).

Procedure
Participants were randomly assigned to one of three groups and tested individually. They were asked to place their right hand in the immersion chamber for 90 s. Because distraction was shown (McCaul & Malott, 1984) to be effective up to an immersion time of 2 min, this amount of time was selected in order to provide a moderately intense stimulus, but not so intense as to override the effects of the pain-reduction techniques. At the end of this time, participants were asked to remove their hand from the water, reminded their responses were confidential, and instructed to rate the pain they experienced. Following their participation, participants were debriefed and given the opportunity to ask questions regarding the experiment. Members of the control group followed this procedure without the use of one of the following pain-reduction techniques.

Results
The data were analyzed using a one-way, between-groups analysis of variance. A significant main effect was found for mean pain ratings between the three groups, $F(2, 44) = 9.83, p < .001$. Tukey's Honestly Significant Difference test revealed the mean pain ratings for the distraction group and the perceived-control group were significantly ($p < .05$) lower than that of the traditional control group, but were not significantly different from each other (see Table 1). It should also be noted that two participants, both in the distraction group, withdrew from the experiment.

Discussion
The findings of this experiment support the hypothesis that a sense of personal control over an aversive stimulus leads to reduced pain ratings. Support was also found for positive effects of distraction in
reducing pain, as previously reported by Devine and Spanos (1990), Marino et al. (1989), and McCaul and Malott (1984).

The method of personal control employed in this experiment was a combination of behavioral and decisional control. Averill (1973) discussed findings showing that participants given decisional control over an aversive stimulus often reported increased stress due to the pressure of making a decision. The findings of the present study seem to contradict that notion. The absence of any real pressure to make the decision to turn on the "heating" device may explain this discrepancy. The presence of behavioral control over the water temperature, even though the control was only perceived, may have overridden the possible increase in stress due to the decisional control. The effectiveness of behavioral control was also studied by Corah and Boffa (1970). Unlike the present study, neither of these previous studies linked personal control to the reduction of pain.

The occurrence of reduced pain ratings in the presence of a stress reducer (perceived control) when compared to the group given the no-pain-reduction technique is consistent with Loeser's (1989) model of pain. In this model stress plays a role in the suffering of an individual (i.e., the evaluative component of pain). The present experiment was designed to evaluate a plausible link between stress and pain perception by comparing a stress-reduction technique with a known pain reducer and a control condition. Although the results are consistent with the hypothesis of what should happen when stress is reduced, no specific measure of stress was taken. Presently, it may only be stated that personal control, previously demonstrated to be effective in stress reduction, was also effective in reducing reported pain. The mechanism responsible for this pain-reducing property could be examined more closely in further experimentation by repeating this experiment and adding a measurement of stress. If the results of the present experiment are replicated, the addition of measured stress reductions would provide a more solid groundwork for evaluating the specific role of stress in the pain experience and lend further support to the accuracy of Loeser's (1989) model of pain perception.

References
Behavioral Evaluation of the Stargazer Mutant Rat in a Tactile Startle Paradigm

The stargazer rat displays abnormal behavior characterized by pronounced arching of the neck, head tics, and hyperactivity. Thus, stargazer rats may provide a behavioral model of Tourette syndrome (TS). The responsiveness of these rats to tactile startle stimuli was examined. Littermate controls showed significant prepulse inhibition and habituation over repeated startle sessions. Stargazer rats did not exhibit startle responses, even under conditions of haloperidol-induced reduction of abnormal behavior. These data disagree with the hypothesis that stargazer rats would have increased responsiveness to startle stimuli due to their hyperactive dopamine systems. However, the reduction of head tics by haloperidol suggests stargazer rats are a model of TS. Thus, the mechanisms by which dopaminergic hyperactivity enhances either head tics or startle responsiveness appear distinct.

The DSM-IV (American Psychiatric Association, 1994) characterizes Tourette’s disorder (commonly known as Tourette syndrome; TS) as recurrent, involuntary, repetitive, rapid movements (tics) that include multiple vocal tics. TS was once considered to be a rare illness, with poor prognosis and intellectual and psychological deterioration. During the last 15 years the marked increase in basic research on and clinical knowledge of TS resulted in large part because of the increased public awareness of TS through the well-funded Tourette Syndrome Association, as well as public service announcements from that same association. Recent findings in the areas of pharmacological treatment and biochemical, genetic, neurological, and psychological studies have advanced our understanding of TS (Brunn & Budman, 1992; Jankovic, 1992; A. K. Shapiro, E. S. Shapiro, Young, & Feinberg, 1988; E. S. Shapiro & A. K. Shapiro, 1986). It is commonly believed the tic Disorders, transient tics of childhood, chronic multiple motor tics, and TS represent a continuum, with transient tics of childhood being the least severe condition and TS being the most severe. The classification of these disorders is based on the age of onset, symptomatology, and clinical course (E. S. Shapiro & A. K. Shapiro, 1986).

The intensity, frequency, and location of these symptoms can vary over weeks or months. The tics experienced occur especially with the head and face, although other body parts, such as the lower and upper limbs and the torso, may experience tics as well. The vocal tics include clicks, grunts, yelps, barks, whines, and words. Coprolalia, the irresistible urge to utter obscenities, occurs in about 30% of the cases. Other associated features include echolalia (the imitation of others’ movements), palilalia (the repetition of one’s own last words or phrases), men-

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Ms. Kazlauskas conducted this research as a thesis in partial fulfillment for the degree of B.A. in Psychology. Preliminary results were presented at the Eastern Psychological Association in March 1996, and that abstract was awarded a Psi Chi Regional Research Award.

The authors are deeply indebted to Drs. C. R. Ashby, Jr., currently at St. John’s University, and J. W. Brock, University of North Carolina, for providing the stargazer rats used in this study. The authors would also like to thank Matthew Albert for his assistance in the initiation of these experiments, and Dr. Kathleen Flannery for her helpful comments regarding this manuscript. This research was supported by Public Health Service Grant MH 51706 (MDK).

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The symptoms of TS can be voluntarily suppressed for a few minutes to an hour at a time, but are then typically followed by a rebound in symptomatology. The symptoms of TS can be successfully managed in many patients with medication. Beginning in the 1960s, haloperidol was the drug of choice for treating TS patients, and it has been found to be quite effective at low doses. However, many patients discontinue the use of the drug because of its many side effects, including akathisia, akinesia, developing phobias, becoming irritable and fearful, cognitive impairment, dysphoric symptoms, and tardive dyskinesia. These side effects intervene to limit the drug’s usefulness (A. K. Shapiro et al., 1988; E. S. Shapiro & A. K. Shapiro, 1986). Another drug that appears to be at least as effective as haloperidol is pimozide. The major side effects are similar to those seen with haloperidol, but the drug is less sedating. The mode of action for these drugs appears to be preferential inhibition of postsynaptic dopamine (DA) receptors (Erenberg, 1992; A. K. Shapiro et al., 1988). Another drug that has been used in the treatment of TS is clonidine (an alpha₂-adrenergic agonist). This drug not only reduces the simple motor and phonic tics, but it has also been useful in improving attentional problems and ameliorating complex motor and phonic symptoms. The major side effect found with the use of clonidine is sedation (LeWitt, 1992; A. K. Shapiro et al., 1988).

Presently, the etiology for TS has not been identified. Preliminary evidence suggests the site of the disturbance may be the basal ganglia (E. S. Shapiro & A. K. Shapiro, 1986). The basal ganglia are a site of DA transmission, and DA antagonists are the drugs of choice for treating TS. By examining the regions of the brain where there may be increased dopaminergic activity, the specific pathways involved in TS might be identified. One line of research has investigated the role of the pedunculopontine tegmental nucleus (PPN) and its effect on increased dopaminergic activity. M. D. Kelland and colleagues (M. D. Kelland, Chiido, & Freeman, 1990; M. D. Kelland, Freeman, Rubin, & Chiido, 1993) have confirmed that electrical stimulation of the PPN excites nigrostriatal DA neurons (see also Scarnati, Campana, & Pacitti, 1984; Scarnati, Proia, Campana, & Pacitti, 1986), and have demonstrated that PPN stimulation excites mesoaccumbens DA neurons in a similar fashion (M. D. Kelland et al., 1990; M. D. Kelland et al., 1993). These studies provided evidence for both monosynaptic and polysynaptic excitatory inputs. Thus, it seems clear that increased dopaminergic activity resulting from increased PPN activity could be involved in the development of TS.

One problem with the above-mentioned studies, however, is that they were conducted on normal rats. An animal model of TS is needed that would allow for an examination of the role of the PPN and other theories regarding the cause of TS. A new mutant rat called the stargazer has been derived from the Zucker strain (homzygous stg/stg). These rats display abnormal behavior characterized by pronounced arching of the neck (“stargazing”) or head tics, rapid circling, and conspicuous hyperactivity (Brock & Ashby, 1996; Brock, Truett, Ross, & Kloster, 1995; Truett, Brock, Lidl, & Kloster, 1994). Preliminary tests have concluded stargazer rats possess a genetically mediated dysfunction of their central dopaminergic system, which links their abnormal behavior to an overstimulation of the dopaminergic system. Therefore these rats may be a suitable animal model for TS. Their heterozygous stg/+ littermates display normal spontaneous behaviors and provide an ideal control group (Brock & Ashby, 1996; Brock et al., 1995; Truett et al., 1994).

Because stargazer rats demonstrate abnormal behavior related to a hypothesized dopaminergic hyperactivity, we have chosen to examine the behavior of these rats in a behavioral model known to be sensitive to the level of dopaminergic activity in the brain: responsiveness to acoustic startle reflex paradigms (Bolino et al., 1992; Davis et al., 1990; Geyer, Swerdlow, Mansbach, & Braff, 1990; Mansbach, Geyer,
& Braff, 1988; Swerdlow, Braff, & Geyer, 1990; Swerdlow, Braff, Masten, & Geyer, 1990; Swerdlow, Koob, Geyer, Mansbach, & Braff, 1988; Swerdlow, Mansbach, et al., 1990; Young, Randall, & Wilcox, 1991). However, because stargazer rats are deaf (Brock & Ashby, 1996; Brock et al., 1995; Trueet al., 1994), we utilize tactile startle pulses rather than acoustic startle stimuli. Because this paradigm addresses the sensory responsiveness of stargazer rats to external (tactile) stimuli, it may be directly related to the well-established observation that environmental stimuli have an influence on the symptoms of TS patients.

The specific purpose of the present study is to address whether the hyperdopaminergic nature of stargazer rats manifests itself in startle reflex paradigms in a predictable way. Specifically, compounds which increase dopamine levels in rats increase responsiveness to startle pulses and interfere with habituation to repeatedly presented startle stimuli; these phenomena have been suggested as a model of schizophrenia (Geyer et al., 1990; Swerdlow et al., 1988). However, the stargazer rat has been proposed as a model of TS, not schizophrenia, and TS does not involve any psychotic symptoms. Thus, we hypothesize that the stargazer rat will demonstrate normal responses to tactile startle pulses and subsequent habituation to repeated administration of startle pulses.

Method

Animals

In this study we examined stargazer rats (homozygous stg/stg; stg group) and unaffected littersmates (heterozygous stg/+; LM group) provided by Dr. Charles R. Ashby, Jr., of the Brookhaven National Laboratory (Upton, NY). Rat pups were bred in the vivarium and phenotyped at 14 days of age as stargazers or littermates, based upon the demonstration of stargazing behavior. After weaning, the rats were housed in pairs (stargazer with littermate), in rooms maintained at 25° C, 40% humidity, a 12-hr light/dark cycle (light, 0700-1900 hrs), with food and water available ad libitum (Brock & Ashby, 1996). After being shipped to Saint Anselm College the rats were allowed to accommodate for 7 days, being maintained on a 12-hr light/dark cycle (light, 0800-2000 hrs), with food and water ad lib. All behavior measurements were performed during the light cycle, from 0800 to 1200 hrs.

Tactile Startle Experiments

Rats were tested in an SR-LAB stabilimeter chamber to detect startle responses (San Diego Instruments, San Diego, CA). The testing chambers consist of a Plexiglas cylinder 8.2 cm in diameter resting on a 12.5 x 25.5 cm Plexiglas frame, and the entire assembly is located within a ventilated enclosure. The tactile stimulus consisted of a pressurized air puff directed into the testing chamber by a copper tube. A standard regulator allowed for control of the air pressure (20 to 50 psi). A piezoelectric accelerometer mounted below the Plexiglas frame detected and transduced motion within the cylinder. An IBM-compatible 286 computer and interface assembly controlled the delivery of tactile stimuli and digitized and recorded 250 1-ms readings from the stabilimeter, starting at the onset of the air puff. The peak amplitude of these readings was used as the dependent variable. Calibration procedures were performed between experiments to ensure consistent levels of air pressure and equivalent sensitivities of the stabilimeters. The rats were placed into the startle apparatus and exposed to 100 dB[A] background noise for 5 min. The background noise continued throughout the session to mask the noise of the air puffs.

The rats were then exposed to two types of stimuli: (a) a 40-ms tactile pulse of either 20 or 50 psi; or (b) a 40-ms prepulse of 20 or 50 psi presented 100 ms prior to the onset of a second 40-ms tactile stimulus, the latter stimulus being the point from which data were collected. The startle pulse and the prepulse-pulse pair were administered 15 times each in an alternating fashion with 15 sec between the stimuli. All rats were tested at 20 psi on Days 1, 5, and 7. Each group was later tested one time at 50 psi.

Effect of Haloperidol on the Incidence of Head Tics (Stargazing)

In the test examining the effects of haloperidol on the tactile startle response of stargazer rats, the animals received an intraperitoneal injection of haloperidol (0.3 mg/kg) 2 hr prior to initiating the tactile startle procedure (utilizing 20 psi during the tactile startle testing). Haloperidol (Research Biochemicals International, Natick, MA) was prepared for injection by dissolving in a minimal amount of glacial acetic acid and then diluting with distilled water. During the last 5 min of the 2-hr treatment period with haloperidol the rats were videotaped in an open field for later analysis of the incidence of head tics (as compared to 5 min of videotaped behavior preceding haloperidol administration). The occurrence of head tics was tallied for that 5-min period.

Results

Effects of Time on the Response of Stargazers Versus Control Rats to Tactile Startle Pulses

On Days 1, 5, and 7, the rats were tested for their responsiveness to tactile startle pulses at 20 psi. The
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FIGURE 1

Bar graphs demonstrating the responsiveness of control versus stargazer rats to tactile startle stimuli.

![Graph showing responsiveness of control vs. stargazer rats to tactile startle stimuli.]

Control rats demonstrate habituation to repeated presentation of the startle stimuli as well as a significant reduction in the startle response following administration of a prepulse.

![Graph showing the response of control rats.]

Stargazer rats demonstrate neither of these phenomena, most likely due to the fact that they are not being startled by the stimuli (note the dramatic reduction in the value of the y-axis).

Consistent with these data, the stargazers did not show a significant reduction in their responsiveness to tactile startle stimuli over time. For tactile startle alone there was no significant reduction in level of startle: \(M = 41.1 \pm 1.8\) on Day 1 versus \(39.0 \pm 1.6\) on Day 7 (see Figure 1). Similar results were obtained for the prepulse/pulse pair: \(M = 46.2 \pm 5.2\) on Day 1 versus \(37.5 \pm 2.6\) on Day 7 (see Figure 1).

The most important result from these data is the apparent failure of the stargazer rats to exhibit startle responses at all (see also tests of the effects of 20 vs. 50 psi tactile pulses with no rat in the chamber, described below). There were significant differences between the responsiveness of the stargazers and that of the control rats for both startle alone and the prepulse/pulse pair, \(F(1, 11) = 49.5\) and 18.0, respectively, \(p < .01\) (see Figure 1). Because only the control rats responded differently over time to tactile startle pulses, there was also a significant interaction between type of rat and day of testing for both startle alone and the prepulse/pulse pair, \(F(2, 22) = 4.6\), \(p < .05\) and 7.8, respectively, \(p < .05\) and .01, respectively (see Figure 1).

Effects of 20 Versus 50 psi Tactile Stimuli

Following completion of the preceding phase the rats were tested for their responsiveness to tactile startle stimuli at 50 psi, the factorial MANOVA revealing significant main effects for group, \(F(2, 21) = 44.9\), \(p < .01\); pressure, \(F(2, 21) = 5.9\), \(p < .01\); and the interaction between group and pressure, \(F(2, 21) = 4.6\), \(p < .05\). As compared to the effects at 20 psi on Day 7 (see above), there was a significant increase in the response of control rats to startle pulses at 50 psi, \(M = 1720.6 \pm 197.5\) on Day 1 to \(M = 866.5 \pm 138.7\) on Day 7, \(F(2, 22) = 5.6\), \(p < .05\) (see Figure 1), and from \(M = 288.4 \pm 52.4\) on Day 1 to \(M = 109.6 \pm 22.0\) on Day 7 following the prepulse/pulse pair, \(F(2, 22) = 9.5\), \(p < .01\) (see Figure 1). In contrast, the stargazers did not show a significant reduction in their responsiveness to tactile startle stimuli over time. For tactile startle alone there was no significant reduction in level of startle:

\[
M = 41.1 \pm 1.8 \quad \text{on Day 1 versus} \quad 39.0 \pm 1.6 \quad \text{on Day 7 (see Figure 1).}
\]

Similar results were obtained for the prepulse/pulse pair:

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FIGURE 2
Bar graphs demonstrating the responsiveness of control versus stargazer rats to tactile startle stimuli at either 20 or 50 psi.

Control rats demonstrate increased responsiveness to the high-pressure tactile stimuli.

Stargazer rats also appear to demonstrate increased responses. However, the increases are not significant, and similar results are obtained when no rat is in the chamber (see text).

Note: The values at 20 psi are those obtained on Day 7 in the preceding experiment.

210.5, $F(1, 22) = 11.0, p < .01$ (see Figure 2). Likewise, there was a significant increase in the effect following the prepulse/pulse pair, $M = 401.0 \pm 96.9, F(1, 22) = 9.5, p < .01$ (see Figure 2).

Although 50 psi tactile startle pulses increased the measured response of stargazer rats for both startle alone and the prepulse/pulse pair ($M = 74.7 \pm 9.9$ and $72.6 \pm 10.1$, respectively; see Figure 2), the differences were not significant. In order to determine whether the data from stargazer rats at either 20 or 50 psi actually represented startle responses, we tested the measured response of empty chambers at these air pressure levels. The results provided values of $M = 31.5 \pm 0.7$ at 20 psi and $M = 69.6 \pm 0.9$ at 50 psi, values that are nearly identical to those obtained when stargazer rats are in the chambers. Thus, the data obtained during tactile startle experiments with stargazer rats appear to equate to the effects of the tactile stimulus itself.

Again there was a significant difference in the responsiveness of the control versus stargazer rats for both startle alone and the prepulse/pulse pair, $F(1, 22) = 85.0$ and $13.7$, respectively, $p < .01$ (see Figure 2), and there were also significant interaction effects, $F(1, 22) = 9.3$ and $5.6$, respectively, $p < .01$ and $.05$, respectively (see Figure 2). Specifically, the interaction effect demonstrates that the rat must be responding in the first place in order for the air pressure to modulate the response of the rat.

Effects of Haloperidol on the Incidence of Head Tics and Responsiveness to Tactile Startle Stimuli
Haloperidol has previously been shown to reduce the incidence of head tics in stargazer rats (Brock & Ashby, 1996; Brock et al., 1995). In the present study we administered haloperidol in order to determine whether a reduction in head tics would unveil sensory responsiveness to tactile stimuli. As expected, haloperidol significantly reduced the number of head tics exhibited by the stargazer rats from $M = 58.2 \pm 4.4$ preceding drug administration to $M = 18.7 \pm 4.1$ postdrug, $t(5) = 5.7, p < .01$, (see Figure 3).

However, haloperidol did not alter the responsiveness of stargazer rats to tactile startle stimuli; factorial MANOVA revealed a significant main effect for
group, $F(2, 21) = 34.9, p < .01$, but not for either the main effect of drug, $F(2, 21) = 0.5$, or the interaction between group and drug, $F(2, 21) = 0.6$. Specifically, in the presence of haloperidol control rats still responded to the tactile startle stimuli as before: $M = 866.5 \pm 128.4$ predrug versus $M = 688.9 \pm 153.5$ postdrug for startle alone and $M = 109.6 \pm 20.4$ predrug versus $M = 95.2 \pm 34.0$ for the prepulse/pulse pair (see Figure 4). The responsiveness of stargazer rats was also unchanged: $M = 39.0 \pm 1.6$ predrug versus $M = 38.2 \pm 5.8$ postdrug for startle alone and $M = 37.5 \pm 2.6$ predrug versus $M = 36.6 \pm 2.3$ postdrug for the prepulse/pulse pair (see Figure 4). Again there was a significant difference between the control versus stargazers rats in terms of their responsiveness to both tactile startle pulses alone and the prepulse/pulse pair, $F (1, 22) = 46.1$ and $9.1$, respectively, $p s < .01$ (see Figure 4).

**Discussion**

Previous literature on the responsiveness of rats to startle and prepulse inhibition has focused on the use of acoustic startle (for review see: Geyer et al., 1990; Swerdlow et al., 1988). Further, M. D. Kelland and colleagues (M. D. Kelland, 1995; M. D. Kelland et al., 1995) have shown that over repeated testing sessions habituation to acoustic startle pulses occurs. However, because stargazer rats are deaf, tactile startle was used as an alternative means to evaluate these animals as a putative model for TS. In agreement with the literature on acoustic startle, the littermate control rats used in this experiment exhibited startle responses to tactile stimulation. Likewise, these startle responses were subject to paired-pulse habituation, and over the three testing sessions these rats showed a significant reduction of their startle responses for both the startle alone as well as the prepulse/pulse pair condition. To further verify the validity of the tactile startle paradigm, the air pressure in the chambers was increased from 20 psi to 50 psi. Comparing the effects of 50 psi to the third session at 20 psi, there was a significant increase in the response of these control rats. Thus, it can be concluded that, because tactile stimulation results are quite similar to those obtained with acoustic startle, the former technique may be substituted for the latter when studying the deaf stargazer rats.

The stargazer rats were then tested under the tactile stimulation conditions. There is strong evidence in the literature to support the notion that environmental stimuli affect the presence of TS symptoms. One effect is an increase in symptoms when the patient is experiencing anxiety or stress (A. K. Shapiro et al., 1988). Therefore, it was assumed that if stargazer rats were tested under anxiety-producing or stressful situations (i.e., tactile startle) they would be hyperresponsive, a phenomenon akin to the increased symptomatology in TS patients. Previous research has also shown that DA agonists increase responses to acoustic stimuli and decrease the ability of prepulses to inhibit sensory responsiveness (Davis et al., 1990; Geyer et al., 1990; Mansbach et al., 1988; Swerdlow, Braff, & Geyer, 1990; Swerdlow, Braff, Masten, & Geyer, 1990; Swerdlow et al., 1988; Swerdlow, Mansbach, et al., 1990; Young et al., 1991). If the abnormal behavior of stargazer rats results from hyperdopaminergic activity (Brock & Ashby, 1996; Brock et al., 1995), then it is again expected that stargazer rats would be hyperresponsive to tactile stimuli. However, the present data suggest our assumptions about their level of responsiveness were incorrect, because the stargazer rats did not startle at all. Therefore, both the model and our assumptions regarding the neurobiology and the symptomatology of TS require closer examination.

The possibility that the lack of startle responses was due to hyperactivity in general, so much so the
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Figure 4
Bar graphs demonstrating the effects of haloperidol on the responsiveness of control versus stargazer rats to tactile startle stimuli.

Control rats demonstrate typical responsiveness in the presence of haloperidol.

Stargazer rats also demonstrate their typical lack of responsiveness to tactile startle stimuli.

Note: The values at 20 psi are those obtained on Day 7 in the initial experiment.

Stargazer rats could not focus on the environmental stimuli, was then tested. The rats were given haloperidol, a drug that reduces the incidence of head tics and hyperactivity in stargazer rats (Brock & Ashby, 1996; Brock et al., 1995) and that is commonly used to treat the symptoms of TS (A. K. Shapiro et al., 1988; E. S. Shapiro & A. K. Shapiro, 1986). It was believed that if the drug reduced the symptoms the stargazer rats displayed, then the rats would have the ability to startle. The drug significantly reduced the head tics and hyperactivity in the abnormal rats, but failed to uncover any sensory responsiveness. Thus, the occurrence of head tics may be unrelated to sensory responsiveness.

Another possibility regarding the lack of startle relates to the effect environmental stimulation has on persons with TS. An alternative to the suggestion that tactile startle is a stressful event is that the chambers represent a novel situation. The literature suggests when those suffering from TS encounter new environments their symptoms will diminish and may even temporarily disappear (A. K. Shapiro et al., 1988). Therefore the lack of startle may be due to the fact that the chamber is a strange situation for the stargazers and they cannot respond properly or in a similar fashion to other rats without these symptoms. This explanation does not seem plausible, however, because after repeated test sessions the stargazer rats should have acclimated to the startle chambers.

The idea that the stargazer rat is a model for TS needs to be examined more closely. It seems this strain of rats is a good model for TS for several reasons. First, researchers (Brock & Ashby, 1996; Brock et al., 1995) have found these rats do seem to have a hyperactive dopaminergic system, which is the same system the literature suggests underlies TS in humans (A. K. Shapiro et al., 1988; M. D. Kelland et al., 1990; M. D. Kelland et al., 1993). Further, haloperidol significantly reduced the head tics and hyperactivity of the stargazer rats, as is the case with drugs in the treatment of patients with TS. However, the lack of startle of the stargazer rat contradicts the literature regarding the increase of dopaminergic activity and the acoustic startle. A more plausible explanation for the lack of startle is that the source of the dopaminergic abnormality is different. Much of the literature on acoustic startle is related to schizophrenia (Bolino et al., 1992; Davis et al., 1990;
Geyer et al., 1990; Keith, Mansbach, & Geyer, 1991; M. D. Kelland, 1995; M. D. Kelland et al., 1995; Mansbach, 1991; Mansbach et al., 1988; Swerdlow, Braff, & Geyer, 1990; Swerdlow, Braff, Masten, & Geyer, 1990; Swerdlow et al., 1988; Swerdlow, Mansbach, et al., 1990; Young et al., 1991). Schizophrenia and TS are both the result of increased dopaminergic function and can be treated with the same drugs (e.g., haloperidol); however, they are fundamentally different disorders. The increased dopaminergic function may be caused by completely separate pathways. Theories have suggested that reduced cortical glutamate causes a dopaminergic abnormality that results in schizophrenia (Carlsson, 1988; Grace, 1991), whereas PPN-induced increases in dopaminergic activity may underlie TS.

An alternative explanation is that the DA hyperactivity models are different. In the previous studies, rats tested in the acoustic startle chambers were administered a DA agonist, whereas the stargazer rats have a genetically caused abnormality. Therefore, the mechanisms that underlie the abnormality in the stargazer rats may be significantly different. To wit, peripheral drug administration potentially results in relatively high levels of the drug throughout the entire milieu of the central nervous system. In contrast, the genetic abnormality must exert its effects within the constraints of endogenous physiological limitations. Based on these differences, the stargazer rat is probably a good model for TS, but the tactile startle paradigm may not be a good measure to evaluate these rats.

If the startle paradigm is not a good measure for evaluation, is there an alternative behavioral model with which to assess the stargazer rat? Another characteristic of some patients with TS, not discussed to this point, is obsessive-compulsive disorder (OCD). Some individuals manifest symptoms of both OCD and tic disorder, thereby receiving a dual diagnosis. The incidence of OCD in TS patients is quite high (up to 63%; Cath et al., 1992). The tics of TS can be distinguished from compulsions in that the latter are performed in a complex way and in response to an obsession and according to a set of rigidly followed rules, whereas tics are typically less complex and are not aimed at decreasing the anxiety and tension caused by the obsession (Cath et al., 1992; A. K. Shapiro et al., 1988). A behavioral model of OCD in rats in which chronic treatment with quinpirole produces a behavioral sensitization with compulsive and rigid locomotion along few paths in a region of an open field, as well as motor rituals when objects are placed in this open field, was described (Eilam & Szechtman, 1995; Szechtman, Talangbayan, Canaran, Dai, & Eilam; 1994). The quinpirole treatment also causes these rats to be hyperactive (Eilam & Szechtman, 1995; Szechtman et al., 1994), which may parallel the hyperactivity of the stargazer rats observed in the present study (data not quantified; see also Brock & Ashby, 1996; Brock et al., 1995; Truett et al., 1994). Further research should be directed toward setting up a similar open field maze containing objects and evaluating the stargazer rats in this new OCD behavioral paradigm. However, it is important to keep in mind that this procedure may not be appropriate either, since OCD is not the defining characteristic of TS; rather, head tics are the major defining characteristic.

In conclusion, it is believed that the stargazer mutant rat may still be a suitable model for TS. As stated earlier, the increased dopaminergic activity and the outward symptoms displayed by these rats (head tics), appear to make them a good animal model for the study of TS. These data add to the limited literature about this rat strain. The testing procedures used (similar to acoustic startle) are commonly administered as a model of schizophrenia. Therefore, it has been established that the stargazer rat is a nonschizophrenogenic model. Further investigation of the stargazer rat will help to elucidate the precise nature of its abnormality, as well as to address further the applicability of the model to TS.

References


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No Suicidal Contagion in High School Students Who Knew a Suicidal Person

To ascertain whether high school students report being adversely impacted by knowing of a suicide, 88 mainstream (n = 20) or disaffected (n = 68) high school students from four different public high schools in the Southeast answered questions about their personal experiences and reactions to stressful life events. During school, students received parental consent forms (approximately 44% of which were returned completed). Those who then assented themselves completed the Impact of Event Scale about a suicide (or another stressful event), the Suicidal Ideation Questionnaire, and the Suicidal Behaviors Questionnaire. Disaffected students were enrolled in an in-school program for at-risk students. Average scores, consistent with research on college students, reflected a low level of suicidal ideas. Those who knew someone who attempted or committed suicide (n = 19) were no more suicidal than those who reported a different stressful life event (n = 64), and all were impacted about the same in terms of both intrusion and avoidance. Disaffected students were no different from mainstream students in suicidality or impact. Apparently, high school students report moderate amounts of intrusion and avoidance following stressful events, whether the stressful event is knowing someone who commits suicide or something else such as death or divorce in the family.

Suicidal contagion refers to the fact that when one suicide occurs in the community, others in the community may be more likely to attempt or commit suicide. Teenagers are particularly susceptible to peer influence and so may be particularly vulnerable to suicidal contagion. Some experts conclude that exposure to another's suicide is not sufficient to cause suicide, but may be considered an accelerating risk factor among those already predisposed to be at risk (Berman & Jobes, 1991).

However, the evidence is mixed about whether adolescents who are acquainted with someone who has attempted or committed suicide are more likely than those nonacquainted to attempt or commit suicide themselves. Evidence can be in the form of (a) vignette studies about hypothetical incidents, (b) sociological studies of national suicide rates after a media event involving suicide, or (c) retrospective surveys of actual people who may have known of a suicide.

Some evidence using hypothetical incidents supports the idea that a behavioral contagion effect exists. For example, college students who viewed a film of a distressed teen predicted she would be more likely to attempt suicide if she knew about a suicide in the community than if she had no such knowledge (Range, Goggin, & Steede, 1988). Also, high school students believed contagion might occur with a hypothetical adolescent in distress (Gibson & Range, 1991), whether the contagious incident was knowing someone who committed suicide or knowing someone who sought mental health treatment. These hypothetical studies provide evidence of suicidal contagion in teens.

On the other hand, other hypothetical research has found no evidence of suicidal contagion. For example, high school students who read written reports of suicide in the community were not persuaded to believe that they themselves would commit suicide (McDonald & Range, 1990). Also, high school students who viewed a video of a distressed teen who knew of a suicide thought that the teen, or they themselves in that situation, were no more likely to commit suicide than if they knew of an accidental death (Steede & Range, 1989). These hypothetical studies provide evidence against suicidal contagion in teens.

Sociological studies involving suicidal contagion in teenagers have used the media (newspaper articles...
and television movies about suicide) to measure imitative suicidal behavior (Gould & Shaffer, 1986; Phillips & Carstensen, 1986). Some of this research provides evidence of a contagion effect. For example, national suicide rates 2 weeks after a controversial television show involving suicide was aired were higher than the suicide rates 2 weeks before the show aired (Gould & Shaffer, 1986). A similar effect was true after a television news report of a suicide (Phillips & Carstensen, 1986). The problem that arises with these findings is that there was no evidence the suicide attempters actually viewed the television shows during that time period (Eisenberg, 1986). Nevertheless, this evidence suggests a contagion effect for suicide exists.

Other evidence involving the media suggests that no contagion effect exists. For example, after a soap opera suicide attempt, no strong differences occurred in the suicide rate compared with before the suicide attempt (Platt, 1987). Other research on media suicides indicates that a contagion effect, if any, is limited (Berman, 1988; Phillips & Carstensen, 1987), specific to some geographic regions but not others (Gould, Shaffer, & Kleinman, 1988), and more likely after a celebrity than a noncelebrity suicide. Thus, though some sociological evidence suggests that a contagion effect exists, other evidence is mixed or contradictory.

Retrospective research, another approach to studying suicidal contagion, focuses on people who actually know someone who has attempted or committed suicide, with the idea that knowing of a suicide may influence the person to model the same behavior. For example, adult psychiatric inpatients who had attempted suicide actually had fewer suicidal models, perhaps making them less likely to recognize the hardships that are associated with suicide and more apt to use suicide as a way out of their problems (Chiles, Strosahl, McMurtray, & Linehan, 1985). One of the ways this particular project is limited is it only included adults in a hospital. Adolescents are a high-risk group for suicide, and may be particularly vulnerable to contagion.

So, some evidence in retrospective and hypothetical studies, mostly with adults, suggests that suicidal contagion exists, though some disagree. Still another way to test suicidal contagion would be to ask people directly. Such a design would avoid selective memory or social desirability biases inherent in other types of research. Asking people directly was the method used in the present design. We expected teens who knew of a suicide in the community to be more suicidal than those who knew of no suicide in the community.

**Method**

**Participants**

Participants were 88 high school students (54 girls, 34 boys) from four southeastern public schools. All were between the ages of 14 and 20 ($M = 16.4, SD = 1.14$); most (89.5%) were White. A majority of the students (68) were enrolled in a special program for at-risk, disaffected youth called FOCUS (recognized by the National Diffusion Network). The remaining 20 students were from a regular English class in the high schools. The disaffected group and the mainstream group did not differ significantly in age, race, or sex.

When asked if they knew of a suicide, 19 students reported knowing someone who had attempted or committed suicide, 64 others reported another stressful event such as the death of a loved one or a pregnancy, 5 reported no major life event. The 19 who knew someone who had committed suicide did not differ significantly in age, race, or sex from the 64 who knew no one who committed suicide.

**Materials**

The **Suicidal Behaviors Questionnaire**. The Suicidal Behaviors Questionnaire (SBQ; Cole, 1988; Linehan & Nielsen, 1981) is composed of four Likert items: “Have you ever thought about or attempted to kill yourself?” 1 (never) to 6 (frequently); “How often have you thought about killing yourself in the last year?” 1 (never) to 5 (daily); “Have you ever told someone that you were going to commit suicide or that you might do it?” 1 (never) to 3 (frequently); “How likely is it that you attempt suicide someday?” 1 (no possibility) to 5 (probable). Scores range from 4 to 27.

The SBQ is internally consistent with Cronbach alphas of .75 and .80 and is reliable over 2 weeks time ($r = .95$). It is also valid, correlating with the Scale for Suicide Ideation ($r = .69$) and weakly with the Reasons for Living Inventory ($r = .34$) (Cotton, Peters, & Range, 1995).

The **Impact of Event Scale**. The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979) is a 15-item self-report scale that measures the degree of impact a life event has on the respondent. In the present study the life event was knowing someone who had attempted or committed suicide, or if not, then another stressful life event. The items in the questionnaire are divided into two subscales: intrusion and avoidance. Intrusion is characterized by strong emotional reactions, images, and unwanted thoughts (i.e., “I thought about it [life event] when I didn’t mean to”). Avoidance is characterized by denial of feelings and numbness of emotions (i.e., “I tried not to think about it”). Possible scores range from 0–35 on the intrusion subscale, 0–40 on the avoidance subscale, and 0–75 on the total score.
The IES is internally consistent (alphas for intrusion = .78 and for avoidance = .82). Test-retest reliability over a 1-week interval was adequate for the intrusion subscale (r = .89) and for the avoidance subscale, (r = .87) (Horowitz et al., 1979). Evidence of validity is strong (Yule, Bruggencate, & Joseph, 1994; Zilberg, Weiss, & Horowitz, 1982).

The Suicidal Ideation Questionnaire. The Suicidal Ideation Questionnaire (SIQ, High School Version) is a 30-item self-report measure of suicide ideation (Reynolds, 1988). Scores are on a 7-point Likert scale with 1 = “Almost everyday” to 7 = “I never had this thought,” so that low scores indicate more suicidal ideas. The SIQ has an internal consistency of .94 and a test-retest reliability of .72. It is a valid scale correlating with the Beck Depression Inventory, the Beck Hopelessness Scale, and the Reynolds’ Adolescent Depression Scale (Reynolds).

Procedure
During a general English class, students were asked if they would like to participate in a study concerning a death in the community. Everyone present was given a parental consent form to be taken home and signed by a parent or guardian and returned to school. Students were informed that participating or not in the present research would have no effect on their academic standing. Approximately 44% of those who were given parental consent forms actually returned them.

Upon returning signed consent forms, assenting students anonymously completed, in order, the SBQ, the IES, and the SIQ. On the IES, students were asked to write the word “suicide” in the blank marked “life event” if they had ever been acquainted with someone who had attempted or committed suicide. If not, they were asked to specify another stressful life event. They were provided with a phone number if they had any questions or concerns about the nature of the study. Free counseling was offered for those who felt they had personal problems as a result of the study. No one sought help or expressed the need for it.

Results
On the SBQ the average score was 7.6 (SD = 4.1), indicating a low level of suicidality. On the SIQ the average score was 5.8 (SD = 1.2), indicating few suicidal thoughts. See Table 1. These scores are consistent with those of college students (Range & Antonelli, 1990).

On the IES the average total score for suicidal and other groups together was 34.1 (SD = 20.79). Students who did not know of a suicide rated other stressful events including divorce of their parents, unwanted pregnancy, and death of a loved one. The average score for the intrusion subscale was 16.0 (SD = 10.9) and the average score for the avoidance subscale was 18.04 (SD = 11.6). In comparison, interns who had experienced a patient commit suicide had an average intrusion score of 20.0 (SD = 20.3) and an average avoidance score of 15.4 (SD = 6.7); and, interns who had experienced a patient attempt suicide had an average intrusion score of 15.5 (SD = 4.3) and an average avoidance score of 10.3 (SD = 5.9) (Kleespies, Smith, & Becker, 1990).

A one-way analysis of variance indicated no significant difference between individuals who stated suicide as a stressful life event and those who reported another stressful life event. Also, there was no significant difference between the responses of the affected group and the responses of the random group.

Discussion
The results indicate that students who knew someone who attempted or committed suicide were no more suicidal themselves than those who had no such knowledge. These results are consistent with those of Steed and Range (1989), who used hypothetical scenarios. Apparently, high school students feel they are invulnerable to suicidal contagion, no matter whether they are asked about a hypothetical situation or about someone they actually know.

The results also indicate that knowing someone who attempted or committed suicide was moderately stressful in terms of psychological impact, but no more so than other experiences that high school students report. Suicide may be a difficult experience for some students, but other experiences are equally problematic.
The results also indicate that disaffected students were no more suicidal than mainstream students. A possible explanation could be the success of the FOCUS program, which begins in the freshman year of high school when on average students are 14–15 years old. By the time they participated in the present study, they had made progress in areas such as positive self-image, adequate social skills, academic achievement, school attitude, and coping skills. Whatever the explanation, mildly disaffected students were no more vulnerable to suicide than their peers.

The levels of suicidality in the present high school students are consistent with the typical level of suicidality in college students (Range & Antonelli, 1990). Apparently, high school students report that they are no more likely to commit suicide than are college students.

High school students reported moderate amounts of intrusion and avoidance, whether the life event was a suicide or another stressful event such as the death of a loved one, divorce, or breakup of a relationship. These scores are similar to or actually a little higher than those of interns who experienced a patient suicide (Kleespies et al., 1990).

Limitations of this research include a response rate of only 44%, with only 20 out of 88 students belonging to the mainstream sample. This somewhat low response rate may have been due to the fact that signed parental consent forms were needed for student participation. Another limitation was that students were all in the public schools. To increase generalizability, future research should include data from private and public schools and cover a broader geographic region. Further, a limitation was that the students were questioned about anyone they knew; no information was obtained about how close they felt to the suicidal person, whether the person actually died or not, or the length of time since the death. Future studies on suicidal contagion should focus on close relationships between the suicidal attempter and the friend or relative as opposed to studying contagion among mere acquaintances. Finally, though unlikely, present students were unfamiliar with psychological research and could have mistrusted the promise of anonymity.

Strengths of this research include that we assessed real-life reactions rather than hypothetical scenarios with mainstream and disadvantaged high school students. Results indicate that being acquainted with someone who had attempted or committed suicide had no contagion effect in terms of students being suicidal themselves, though knowing a suicide victim did lead to intrusive thoughts and active efforts to avoid thinking about it.

References


Field Independence/Dependence: 
A Hypothesized Relationship With 
Leadership and Academic Spheres of 
College Students

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This study related field independence/dependence to leadership and academic realms. One hundred and twenty-two upperclass students, who were science majors, humanities majors, campus leaders, or leadership scholars, completed the Group Embedded Figures Test (GEFT) as a measure of field independence/dependence. Bennis’s (1989) theory of leaders versus managers was applied to field independence/dependence to test the hypothesis that leadership scholars would be comparable to Bennis’s managers and would be field independent whereas campus leaders would be comparable to Bennis’s leaders and would be field dependent. Although both leader groups did not differ significantly, natural science majors were more field independent than humanities majors, no sex differences were found, and switching majors was unrelated to field independence/dependence. Finally, participants accurately rated their own analytical ability as measured by the GEFT but not their interpersonal ability. Although field independence’s relation to the academic sphere has been reaffirmed, the manner in which leadership reflects cognitive style remains an unanswered question for future research.

During training, it was noticed that when pilots fly through clouds, some come out the other side upright whereas others come out the other side upside down (Witkin & Goodenough, 1981). Researchers became interested in this enigmatic phenomenon, which eventually resulted in the description of the cognitive style known as field independence/dependence. Field independence is defined as the ability to identify and evaluate information without regard to its background (Oltman, Raskin, & Witkin, 1971).

Field independence/dependence is related to cognitive and problem-solving abilities. Individuals classified as field independents can easily organize and analyze information. Although field dependents lack this inherent ability to easily organize material (Witkin, Moore, Goodenough, & Cox, 1977), they have a clear advantage with regard to social information. Research supports field dependents’ superiority in attentiveness to social cues (Fitzgibbons, Goldberger, & Eagle, 1965).

Field independence/dependence has been related to academic success. The literature substantiates field independents’ success in natural sciences (Bernardi, 1993; Ferguson, 1993; Paramo & Tinajero, 1990; Wapner & Demick, 1991; Witkin, Moore, Goodenough, et al., 1977; Young, Kelleher, & McRae, 1989). On the other hand, field dependents thrive in the humanities (Murphy, 1993; Wapner & Demick, 1991; Witkin, Moore, Oltman, et al., 1977).

The field independence/dependence literature relates many personal characteristics to these two cognitive styles. Moreover, the qualitative personality differences between field independent and field dependent persons may relate to leadership ability. For example, field dependents exhibit excellent interpersonal skills and may be superb leaders who are chosen often by group members. Although field independents typically do not have strong interpersonal skills, they may also be leaders; however, their strength

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We thank the Ursinus College Undergraduate Research Committee for providing us with the Gladfelter Research Grant, and all participants in this study for their time. Furthermore, we owe a debt of gratitude to George C. Fago, Bruce E. Rideout, and Kenneth D. Richardson for critiquing this paper, and to Daniel J. Barry, Christine G. Keyes, and Boyd A. England for their encouragement and support throughout this project. This paper is based on the thesis for an honors research project.

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lies in organizational skills. Investigating this cognitive style and the construct of leadership may produce a more integrated and inclusive understanding of field independence/dependence and leadership by teasing apart how cognitive style may explain one's choices in leadership activity.

In *On Becoming a Leader*, Warren Bennis (1989) argued there is a difference between leaders and managers. According to Bennis, leaders are inductive, whole brain, and flexible. Therefore, leaders foster independence within their groups. Bennis's other style describes managers who are deductive, left brain, and accomplish tasks according to detailed instructions. Although the relationship is not perfect, the characteristics Bennis used to describe leaders are similar to field dependent traits, whereas the characteristics of managers are similar to field independent traits.

The present study tested the hypothesis that Bennis's (1989) leaders are field dependent, and his managers are field independent. Our leaders are college students chosen by peers to serve in leadership positions in campus organizations. Because these individuals have evolved by group selection, they represent Bennis's leaders and should be field dependent. Our managers are leadership scholars who are students chosen by a campus committee for characteristics such as organizational skills; they should be field independent.

We also attempted to replicate three findings from the literature. First, even though sex differences are pervasive in the earlier research (Witkin, Moore, Goodenough, et al., 1977) with men demonstrating more field independence on average than women, more recent studies failed to detect such differences (Ferguson, 1993; McRae & Young, 1990; Young et al., 1989). The present study investigated whether sex differences exist in a college sample. Second, field independence has been associated with the natural sciences and field dependence with the humanities (Witkin, Moore, Goodenough, et al., 1977); this study sought to replicate this finding. Third, switching majors has been related to cognitive style (Witkin, Moore, Oltman, et al., 1977). Therefore, this study investigated whether students who have switched majors may have changed because of mismatches between their respective chosen disciplines and their individual cognitive styles.

Other hypotheses in this study led to the prediction that there is a relationship between leadership scholars and natural science majors who are both hypothesized to be field independent and between campus leaders and humanities majors who are both hypothesized to be field dependent. Finally, participants rated their own analytical and interpersonal abilities to test the hypothesis that if they are aware of their style, field independents should rate themselves higher in analytical skills and lower in interpersonal skills; the reverse should be true for field dependents.

**Method**

**Participants**

One hundred and twenty-two upperclass students (78 women, 44 men) from a small mid-Atlantic liberal arts college were drawn from four groups: science majors, humanities majors, campus leaders, and leadership scholars. Potential participants were selected to proportionally represent class year (junior and senior) and sex within the groups of science majors, humanities majors, and campus leaders. Potential students were randomly selected after meeting the criteria for representativeness and then invited to participate in the study. Participants received neither monetary compensation nor class credit. The participants were 73 seniors, 37 juniors, and 12 sophomores.

Science majors (*n* = 31; 58% women) included students in biology, chemistry, physics, and mathematics/computer science. Humanities majors (*n* = 30; 63% women) included students in English, history, philosophy/religion, communication arts, and modern languages. Campus leaders (*n* = 30; 60% women) included current or former officers of any established club on campus, officers of Greek organizations, and captains of sports teams. Finally, leadership scholars (*n* = 31; 74% women) consisted of recipients of one type of merit scholarship offered by the college. Incoming students undergo a lengthy interview process, conducted by a committee consisting of faculty and admissions personnel, to determine their leadership potential. Once at the college, merit scholars participate in a 4-year program to develop their leadership skills through organizing special events. There are only 15 merit scholars per year; consequently, sophomore scholars were invited to participate in the study to increase the size of the group. Because scholars are predominantly women, the number of men and women could not be equated.

Potential participants could be members of more than one experimental group, and therefore, the order for selecting groups was established randomly. After participants for a given group were selected, their names were eliminated from the other groups in which they might be placed. It is important to note that all four groups are not symmetrical with respect to major because both groups of leaders included students from the social sciences and students from the natural sciences and humanities.
Testing Instruments
Participants completed the Group Embedded Figures Test (GEFT; Oltman et al., 1971) to determine their cognitive style of field independence/dependence. The GEFT, a more recent version of the Embedded Figures Test (EFT), is a timed paper-and-pencil test designed for a large number of participants. Reliabilities of .82 for both sexes are noted for this instrument, and therefore, are consistent with findings on the EFT. According to the manual (Witkin, Oltman, Raskin, & Karp, 1971), adequate validity has been established with -.82 and -.63 correlations of individual EFT and individual GEFT scores for men and women undergraduates, respectively. The negative correlation results from the reversed scoring on the EFT. Scores on the GEFT range from 0 (field dependence) to 18 (field independence).

Participants also completed a 24-item questionnaire on campus experiences. It requested information on demographics such as sex, class year, original and current major, and self-reports of interpersonal and analytical abilities using a Likert scale. The scale ranged from 1 (not very good) to 5 (very good). The remaining items in this questionnaire were not included in the analyses reported in this study. These items involved school performance, career plans, favorite courses in one's major, and types of leadership positions held.

Procedure
The primary investigator contacted all participants and arranged for them to attend one of several prescheduled times that was most convenient for them. Upon arrival, participants received a packet including the GEFT and the questionnaire. Because scheduled times were open and attended by students from all groups, both packet items were appropriately coded according to their preselected group in order to later identify group membership. After the participants arrived, the researcher reiterated that the study involved two parts and explained the order of these parts. Students were assured anonymity. At this point, directions for administration of the GEFT were followed according to the manual. Afterwards, participants completed the questionnaire on campus experiences. Finally, students were debriefed and allowed to leave.

Results
The GEFT manual (Witkin et al., 1971) indicates 11.4 is the mean for college-age samples. A single sample t test indicated that the grand mean for the present sample, 13.37 (see Table 1), is significantly higher than the cited mean, t(121) = 5.42, p < .01. It is important to note that the student body may be atypical because a large proportion of entering students expect to major in the sciences. In fact, 61 out of 122 participants were natural science majors. Because people in the sciences typically score higher on the GEFT, the large number of science majors may explain the high mean. Due to the possible confound of sophomores in the leadership scholars group, the effect of class year was investigated within that group. Specifically, we compared GEFT scores of sophomores, juniors, and seniors; no significant differences were found, F(1,29) = 1.93, p > .17.

Leadership and Division of Major
Although no specific predictions were made about the relationship between kind of leader and division of major, a 4 (group) x 2 (sex) between-subjects analysis of variance (ANOVA) was performed with participant GEFT scores as the dependent variable in order to investigate the hypothesized similarity between leadership scholars and natural science majors as field independents as well as the hypothesized similarity between campus leaders and humanities majors as field dependents. Group differences were not significant, F(3, 114) = 2.27, p > .085. The means shown in Table 1 indicate that campus leaders and leadership scholars fell between humanities majors and natural science majors, but groups did not differ significantly from each other. There were no sex differences, F(1, 114) < 1, ns. Other preliminary tests also indicated there were no sex differences on GEFT scores; therefore, sex was not included in further analyses.

The primary hypothesis predicted significant differences on GEFT scores between campus leaders and leadership scholars, and a planned comparison was...
TABLE 2

Mean Scores on Group Embedded Figures Test for Humanities and Natural Science Majors by Leader

<table>
<thead>
<tr>
<th>Major</th>
<th>Humanities</th>
<th>Natural sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Scholar</td>
<td>14.00</td>
<td>2.98</td>
</tr>
<tr>
<td>Campus</td>
<td>10.25</td>
<td>6.23</td>
</tr>
</tbody>
</table>

Note. Scores range from a low of 0 (field dependent) to a high of 18 (field independent).

conducted between these two groups. Contrary to the primary hypothesis, this test failed to yield significance, $F(1, 118) < 1$, ns.

A second hypothesis predicted significant differences between natural science majors and humanities majors. A second planned comparison yielded significance, $F(1, 118) = 5.58, p < .02$. As depicted in Table 1, participants majoring in the natural sciences are significantly more field independent than those majoring in the humanities. For both planned comparisons, pooled variances were used.

Participants in both campus leader and leadership scholar groups have a major within either the humanities, natural sciences, or social sciences. Because the mean scores on the GEFT of both leadership groups fell between the humanities and natural sciences, participation in leadership activities may mediate cognitive style. We conducted an exploratory analysis to determine whether the leaders who were humanities and natural science majors were more similar to each other or were more similar to the humanities and natural science groups. A 2 (leaders) × 2 (division of major) between-subjects ANOVA was performed on the GEFT scores for leaders only. Table 2 shows neither main effect was significant; however, there was a significant interaction, $F(1, 44) = 3.95, p < .05$. Simple effects were examined at each level of leader; neither was significant (leadership scholars, $F[1, 24] = 1.77, p > .20$; campus leaders, $F[1, 20] = 2.07, p > .17$). It might be that the analyses lack statistical power due to small sample size. Nevertheless, the means indicate that campus leaders follow the expected pattern with humanities majors scoring in the direction of field dependence and natural science majors scoring in the direction of field independence. Leadership scholars, on the other hand, showed the reverse pattern.

Change of Major

It was predicted that when students change their major, the change should be congruent with their cognitive style. Participants were asked to give both their original major upon entering college and their current major. Responses to both questions were recoded from major to division of major (i.e., current English major = humanities). Only 11 participants had changed to majors within the natural and social sciences, so a two-way ANOVA for original and current major was performed.

TABLE 3

Mean Group Embedded Figures Test Scores for Original Major by Current Major

<table>
<thead>
<tr>
<th>Current major</th>
<th>Original major</th>
<th>Humanities</th>
<th>Natural sciences</th>
<th>Social sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>Humanities</td>
<td>10.54&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5.03</td>
<td>13</td>
<td>15.54&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>18.00</td>
<td>0.00</td>
<td>1</td>
<td>14.78</td>
</tr>
<tr>
<td>Social sciences</td>
<td>15.33</td>
<td>1.75</td>
<td>6</td>
<td>12.10</td>
</tr>
</tbody>
</table>

Note. Means with the same superscript are significantly different at $p < .05$. 
current major was not appropriate (see Table 3). Thirty-three participants had changed to humanities majors; as a result, a one-way ANOVA was performed for current humanities majors, $F(2, 30) = 6.36, p < .005$. The Tukey b procedure indicated that of students currently majoring in the humanities, those who changed from the natural sciences are more ($p < .05$) field independent than other humanities majors who had changed from a major within the humanities or within the social sciences. Because the mean is high for former natural science majors, the results indicate these students moved away from their cognitive style.

**Participants' Ratings**

A one-way ANOVA was computed between the four groups on personal ratings of their own analytical ability (see Table 4). A significant difference was found, $F(3, 118) = 4.86, p < .003$. The Tukey b procedure determined that science majors rated themselves significantly ($p < .05$) more analytical than humanities majors and leadership scholars. Contrary to prediction, campus leaders rated themselves more analytical than leadership scholars.

Participants' ratings of ability to interact with people were analyzed by a one-way ANOVA. No significant differences were found, $F(3, 118) < 1$, ns. The groups of leadership scholars ($M = 4.35, SD = .88$), campus leaders ($M = 4.23, SD = .82$), science majors ($M = 4.16, SD = .64$), and humanities majors ($M = 4.17, SD = .95$) were used in this analysis. The means are high, which indicates all individuals, regardless of group, perceived themselves as interacting well with other people.

**Discussion**

**Leadership**

According to the primary hypothesis, Bennis's (1989) distinction between leaders and managers would characterize qualities of field dependents and field independents, respectively. The results do not support the hypothesis that campus leaders would conform to Bennis's leaders and would be field dependent, or that leadership scholars would conform to Bennis's managers and would be field independent. One interpretation is the present study failed to identify leaders and managers in the way that Bennis defined them. Perhaps defining Bennis's managers as committee-approved leaders is problematic. Other ways of identifying managers and leaders should be explored.

Our leaders may not meet the Bennis (1989) definition; however, they are active leaders. Both leader styles showed moderate scores on the GEFT suggesting that leadership may mediate cognitive style, but the post hoc analyses did not support this interpretation. Campus leaders who evolved from group selection exhibited the expected pattern with field dependents majoring in the humanities and field independents majoring in the natural sciences. Because major overrides leadership for this group, cognitive style does not appear to be mediated by leadership activities. It is not clear why leadership scholars showed the opposite pattern. It is hoped that further research will provide explanations for these enigmatic results.

**Sex Differences**

Research from the 1970s has found small sex differences on field independence, such that women are field dependent whereas men are field independent. No differences were found in the present study, which is consistent with more recent research (Ferguson, 1993; McRae & Young, 1990; Young et al., 1989). Keyes (1983) has asserted that sex differences in field independence/dependence might apply solely to Anglo-European cultures because of their socialized sexual stereotyping. Even Witkin and colleagues (Witkin, Moore, Goodenough, et al., 1977) suggested that sex differences in cognitive styles would be influenced by the nature of the society. Perhaps the reason more recent studies do not show sex differences is that, as women have moved into the workplace, sex differences have diminished (Bernardi, 1993).

An alternative interpretation of sex similarities is that our student body is atypical of college students in general due to the large proportion of first-year women and men entering the sciences. In essence, the college attracts more field independent men and women. Perhaps the preponderance of female science majors in this sample who were field independent

<table>
<thead>
<tr>
<th>Group</th>
<th>$M$</th>
<th>$SD$</th>
<th>$n$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership scholars</td>
<td>3.55c</td>
<td>.68</td>
<td>31</td>
</tr>
<tr>
<td>Campus leaders</td>
<td>3.90c</td>
<td>.61</td>
<td>30</td>
</tr>
<tr>
<td>Natural science majors</td>
<td>4.03b</td>
<td>.60</td>
<td>31</td>
</tr>
<tr>
<td>Humanities majors</td>
<td>3.50b</td>
<td>.73</td>
<td>30</td>
</tr>
</tbody>
</table>

*Note. Scores range from a low of 1 (not very good) to a high of 5 (very good).

*p < .05
has directly contributed to the lack of sex differences. Sex differences should continue to be included in future studies to determine if they do still exist for the populations at large.

**Division of Major**

Despite the fact this population is more field independent than published norms, the present results are consistent with the literature on division of major (Witkin, Moore, Goodenough, et al., 1977). That is, students who choose majors in the sciences tend to be field independent, whereas students who choose majors in the humanities tend to be field dependent. Future studies might include individual majors so that a more definitive understanding of how field independence/dependence expresses itself within divisions can emerge. More importantly, research is needed to move beyond the broadly defined divisions of majors to determine the critical feature(s) of cognitive style that are important to success in a major. Consequently, future studies should address instances when cognitive style is incongruent with major, such as field independent history majors.

**Change of Major**

Past research suggests people who switch majors change to a major congruent with their cognitive style (Witkin, Moore, Oltman, et al., 1977). However, the only significant finding in the present study found that for students who are currently majoring in the humanities, changing from a science major was associated with field independence whereas changing from a humanities or social science major was associated with field dependence. Thus, these results fail to confirm that switching majors solely reflects cognitive style.

There are many reasons why people change majors. Roughly half of every incoming class at this college majors in biology; many of these students are on the premedical track. Sometimes students discover this discipline is not as interesting as originally perceived and prefer to major in something that is intrinsically more appealing. Additionally, some students do not perform well in the intentionally rigorous freshmen biology class, which forces them to choose another major. As a result, former biology majors change to a variety of other majors, including majors in the humanities. Changing majors, therefore, does not appear to be based only on congruence with one’s cognitive style; the present results suggest this choice is multifaceted. Due to the complexity of this issue, further research should explore the choice of major to determine the impact of other factors as well as cognitive style.

**Self-Ratings of Abilities**

Finally, participants rated themselves on their own analytical and interpersonal abilities. It was hypothesized that if people are aware of their skills, field independents would rate themselves higher in analytical skills and lower in interpersonal skills, and the reverse would be true for field dependents. In this study, field independence was associated with rating oneself high on analytical ability. This finding suggests that people can accurately perceive their field independence.

No differences were found for interpersonal skills because all participants rated themselves high. It is not clear why individuals accurately rate their own analytical ability (field independence), but do not accurately rate their interpersonal skills (field dependence). Perhaps the rating of interpersonal skills reflects a social desirability bias because people may not want to appear as though they are shy. The manner in which interpersonal skills was assessed is problematic; individuals were asked to rate “their ability to interact with others.” Social desirability bias clearly appears to have affected the results of this particular rating. The exploratory component in which participants rated their analytical and interpersonal abilities provides sound questions for further investigation into the possible link between one’s perception and one’s measured cognitive style.

**Conclusion**

This study investigated how the cognitive style of field independence/dependence is manifested in leadership ability. Field dependence has been linked to interpersonal skills (Fitzgibbons et al., 1965), and it is logical to assume that interpersonal skills are an important aspect of leadership. Even though we defined leaders in two different ways, neither leadership group scored in the direction of field dependence. However, this study reaffirms field independence/dependence’s application to the academic realm, and therefore, supports the claim that academic interests reflect cognitive style. The question remains for future research: how do different styles of leadership reflect cognitive style?

**References**


Attitudes of Older and Younger Adults Toward Mental Illness and Mental Health Services

KELLY A. FISCHER
HEIDI M. INDERBITZEN*
University of Nebraska-Lincoln

This study investigated the attitudes of both younger and older adults toward mental health professionals and people with mental illness, as well as their willingness to seek help from mental health services. The Mental Health Services Questionnaire was administered to 49 college students (18-24 years) and 65 older adults (65 years and older). A series of 2 (age group) x 2 (sex) multivariate analyses of variance revealed that older adults had more positive attitudes toward people with mental illness and more negative attitudes toward mental health professionals than did younger adults. Older adults had more accepting attitudes toward the utilization of mental health services than younger adults. Results also indicated that older adults do not harbor negative attitudes about mental health services that impede them from utilizing mental health professionals.

Older adults make up a substantial and growing proportion of the United States’ population. Currently, there are approximately 32 million people aged 65 or older in the United States (U.S. Bureau of the Census, 1996). Yet, the fact that a significant number of these older adults are afflicted with mental or emotional problems is often overlooked. Estimates suggest that 10-28% of older adults suffer from various mental health problems (Flemming, Rickards, Santos, & West, 1986). Unfortunately, older adults are consistently underserved and neglected by both private and public mental health providers (Finkel, 1981; Flemming et al., 1986; U.S. General Accounting Office, 1982). Although older adults make up almost 12% of the American population, they represent only 6% of the people seeking mental health services (Flemming et al., 1986; U.S. General Accounting Office, 1982).

Because of the underutilization of mental health services by the elderly, researchers have attempted to identify barriers that impede older adults from seeking and receiving proper assistance for their problems. Some of the most commonly suggested barriers include: misinformation and lack of knowledge about mental health services, transportation problems, financial worries, lack of trained professionals, and lack of specialized outreach programs (Flemming et al., 1986; Lasoski & Thelen, 1987; Roybal, 1988). In addition to these barriers, several researchers (Horwitz, 1987; Lasoski, 1986; Roybal, 1988; U.S. General Accounting Office, 1982) have suggested that both a person’s age and attitudes toward mental health professionals and people with mental illness influence the utilization of mental health services.

There are differing opinions, however, about the relationships among a person’s age, attitudes, and utilization of mental health services. In an unpublished paper, George and colleagues (cited in Horwitz, 1987) reported that responses from community surveys showed age was negatively correlated with people’s utilization of mental health services. Leaf, Bruce, Tischler, and Holzer (1987) found young adults (ages 19-24) and older adults (over age 64) were less receptive to mental health care than the middle-aged group (25-63), and a greater proportion of older adults believed their families would be distressed if they were to seek mental health treatment.

Author note. Correspondence concerning this article should be addressed to Kelly A. Fischer, Department of Psychology, University of Nebraska-Lincoln, Burnett Hall, Lincoln, Nebraska 68588-4637.
Leaf et al. (1985) examined the relationship between attitudes and the likelihood individuals would seek assistance from mental health services. Results indicated that attitudes toward mental health services influenced both the likelihood individuals would seek help for mental or emotional problems and the quantity of mental health services sought.

Some researchers believe many older adults possess negative attitudes about various mental health issues, which prevent them from seeking and obtaining adequate mental health care. For instance, based on personal observations, Blank (1977) states that older people may perceive mental illness as more stigmatizing than younger people. Similarly, Horwitz (1987) suggests that older adults’ underutilization of mental health services may stem from the fact they were socialized during a period when psychiatric services were associated with “madness”; whereas, younger generations have been socialized with a more positive view of the mental health system. Furthermore, Lasoski (1986) reports mutual aversion between mental health professionals and older adults results in lower numbers of older adults seeking help from mental health professionals.

Lundervold and Young (1992) assessed older adults’ attitudes and knowledge about aging and mental health, cost/knowledge of payment mechanisms, access/availability of services, stigma, effectiveness of treatment, religiosity, and openness to discussion. Results indicated older adults generally have negative attitudes and lack of knowledge about mental health services with the greatest degree of negative attitudes and knowledge deficits in the areas of psychopathology and aging, religiosity, and stigma.

Lasoski and Thelen (1987) refute the idea that various age groups possess disparate attitudes about mental health issues. Using six vignettes describing individuals with mental health problems, these researchers concluded there were no differences in how middle-aged (54–55) and older respondents (65 years and older) defined psychological problems or in the two groups’ ability to identify cases in which professional mental health services could help individuals with psychological problems.

McGuire and Borowy (1979) used a semantic differential to assess college students’ attitudes toward various contemporary medical and mental health professional roles. Results indicated that young adults had more positive attitudes toward medical professionals (e.g., physicians and nurses) than toward mental health professionals. Some psychology professionals (e.g., counseling psychologists) were rated as equal to medical professionals. These researchers also found there has been little change in the general public’s acceptance and understanding of traditional mental health professionals such as psychoanalysts. This apparent lack of change in people’s views about mental health issues raises the question of how well attitudes of young adults can be generalized to other age groups, especially older adults.

At least one study investigated whether attitudes regarding mental health issues have improved over time. Omlsted and Durham (1976) had respondents select adjectives on 12 semantic differential scales for eight descriptions including mental patient, ex-mental patient, insane person, average man, most people, me, doctor, and psychiatrist. Results indicated that attitudes concerning mental health issues were remarkably similar for both samples, which were 9 years apart. These researchers concluded that attitudes were not changing as rapidly as hypothesized.

In summary, studies investigating the correlates and barriers of the utilization of mental health services (e.g., Leaf et al., 1987) and the attitudes toward mental health professionals as well as people with mental illness (e.g., Lasoski & Thelen, 1987; McGuire & Borowy, 1979) have produced differing results. In addition, most research addressing the issue of older adults’ attitudes about psychological services was conducted 10–20 years ago; furthermore, no single, recent study has specifically compared both younger and older adults’ attitudes toward mental health services. Clearly, it is necessary to update this line of research. Information generated by such studies could be helpful in designing outreach programs aimed at encouraging greater utilization of mental health services. The purpose of this study was to investigate the attitudes of both younger and older adults toward mental health professionals and people with mental illness, as well as older and younger adults’ willingness to seek help from mental health services.

Method

Participants

Forty-nine young adults (18–24 years old) were recruited from introductory psychology courses at a midsized midwestern university and volunteered to participate as one option to fulfill a course requirement. The young adult sample consisted of 17 male and 32 female respondents with a mean age of 19.29 (SD = 1.58) and a mean education of 12.9 years (range = 12–16 years).

The sample of older adults (65 years old or over) was recruited from a monthly meeting of a retirement group at a local public hospital. Adults aged 55 years and older from the community are invited to join this group, which has monthly meetings on topics such as humor, cancer, and retirement. The older adult
The sample consisted of 19 male and 46 female participants with a mean age of 72.12 (SD = 5.76) and a mean education of 14.5 years (range = 8–21 years).

**Materials**

The Mental Health Services Questionnaire (MHSQ) measures attitudes toward mental health professionals and people with mental illness, as well as a person’s willingness to seek help from mental health services. The MHSQ was specifically designed for this study, using items and ideas from previous research (Lasoski & Thelen, 1987; Leaf et al., 1987; McGuire & Borow, 1979; Olmsted & Durham, 1976).

The first four items on the MHSQ requested demographic information (e.g., age, sex, education level). The next six items assessed the participants’ attitudes toward various mental health professionals (psychologists, counselors, and psychiatrists) as well as attitudes toward people with mental illness (depressed people, psychotic people, and people with emotional problems). For each person described (i.e., psychologist, depressed person), respondents selected between bipolar anchoring adjectives on sixteen 7-point semantic differential rating scales that were originally developed by Nunally and Kittross (1958). These scales were collapsed to represent four dimensions as developed by Nunally and Kittross (1958) and Olmsted and Durham (1976). The four dimensions with their defining scales (with the negative anchor point listed first) include: Potency (weak-strong; delicate-rugged), Activity (cold-warm; slow-fast), Understandability (unpredictable-predictable; simple-complicated), and Value (worthless-valuable; dirty-clean; dangerous-safe; foolish-wise; tense-relaxed; unpredictable-dependable; ineffective-effective; distrust-trust; emotional-unemotional; tense-calm). Seven of the scales had the positive point listed first whereas the other nine had the negative point listed first.

The next nine questions on the MHSQ assessed participants’ general receptivity to mental health services. Statements concerned whether people should seek care if they have mental or emotional problems, and whether respondents would seek care if they had mental or emotional problems. Participants responded to these statements on a 7-point scale with 1 indicating strong disagreement and 7 indicating strong agreement.

Finally, all respondents indicated their level of agreement on a similar 7-point scale for five statements concerning older adults’ use of psychological services and five similar statements addressing younger adults’ utilization. For example, “older/younger people do not need psychological services” and “professionals try to help older/younger people in the wrong ways.”

**Procedure**

The college participants met in groups of 5–10 with the first author. After reading and signing a consent form, participants completed the MHSQ.

The older adults were given a brief description of the study at the start of one of their group’s monthly meetings. Volunteers stayed after the meeting to obtain more information, and interested persons were then given a consent form to read and sign. All those signing consent forms were then given the MHSQ and a stamped addressed envelope with instructions to complete the questionnaire and mail it back to the first author. Although all group members were invited to participate, only those respondents who were 65 years old or over and returned completed surveys were included in data analysis. Seventy-three of the 102 surveys distributed at the meeting were returned, resulting in an initial return rate of 71.5%. Eight returned surveys were from participants under age 65, however, resulting in 65 usable surveys and a final return rate of 63.7%.

**Results**

**Comparisons of Attitudes and Receptivity Variables**

A series of 2 (age group; younger vs. older) x 2 (sex; male vs. female) multivariate analyses of variance (MANOVA) was computed using each of the four dimensions (i.e., potency, value, understandability, and activity) as they relate to people with mental illness as dependent variables. First, a 2 x 2 MANOVA using potency scores for items describing mentally ill persons (i.e., those who have mental or emotional problems, a psychotic person, and a depressed person) yielded significance, $F(1, 109) = 12.969$, $p < .001$. Univariate follow-ups indicated that older adults viewed persons described as having mental or emotional problems and those with depression as more potent (e.g., strong and rugged) than did younger adults (see Table 1). A second MANOVA using value scores as the dependent variable also resulted in a main effect for age, $F(1, 109) = 8.794$, $p < .001$. Univariate follow-ups indicated that older adults had more positive views of psychotic people and depressed people than did younger adults. There were no significant effects of age group for understandability scores, $F(1, 109) = .519$, $p = .670$, or activity scores, $F(1, 109) = 2.623$, $p = .054$, for those items describing mentally ill persons. There were also no main effects for sex or sex by age group interactions for any of the dependent variables (e.g., potency, value, understand-
Attitudes of Older and Younger Adults

Fischer and Inderbitzen

Table I

Age Group Differences in Mean Attitudes Toward the Mentally Ill

<table>
<thead>
<tr>
<th></th>
<th>Older adults</th>
<th>Younger adults</th>
<th>F</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>((n = 65))</td>
<td>((n = 49))</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental/emotional problems</td>
<td>3.75 .85</td>
<td>2.98 1.00</td>
<td>18.88*</td>
<td>.109</td>
</tr>
<tr>
<td>psychosis</td>
<td>3.64 1.08</td>
<td>4.17 .77</td>
<td>3.03</td>
<td>0</td>
</tr>
<tr>
<td>depression</td>
<td>3.38 1.00</td>
<td>2.44 1.10</td>
<td>28.06*</td>
<td>.195</td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental/emotional problems</td>
<td>3.70 .51</td>
<td>3.48 .63</td>
<td>1.97</td>
<td>0</td>
</tr>
<tr>
<td>psychosis</td>
<td>3.60 .98</td>
<td>2.74 .74</td>
<td>23.90*</td>
<td>.159</td>
</tr>
<tr>
<td>depression</td>
<td>3.74 .64</td>
<td>3.32 .85</td>
<td>10.72*</td>
<td>.065</td>
</tr>
<tr>
<td>Understandability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental/emotional problems</td>
<td>3.89 .73</td>
<td>3.90 .77</td>
<td>.29</td>
<td>0</td>
</tr>
<tr>
<td>psychosis</td>
<td>3.92 .78</td>
<td>3.81 .65</td>
<td>1.43</td>
<td>0</td>
</tr>
<tr>
<td>depression</td>
<td>4.15 .74</td>
<td>4.05 .66</td>
<td>.32</td>
<td>0</td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental/emotional problems</td>
<td>3.86 .71</td>
<td>3.65 .92</td>
<td>2.54</td>
<td>0</td>
</tr>
<tr>
<td>psychosis</td>
<td>3.38 2.49</td>
<td>5.98 1.07</td>
<td>.75</td>
<td>0</td>
</tr>
<tr>
<td>depression</td>
<td>3.76 .84</td>
<td>3.38 1.27</td>
<td>6.95</td>
<td>.05</td>
</tr>
</tbody>
</table>

Note: *\( p < .001 \)

ability, or activity scores) for descriptions of mentally ill persons.

Another series of 2 \( \times \) 2 MANOVAs was computed using each of the four dimensions (i.e., potency, value, understandability, and activity) as they relate to mental health professionals (i.e., psychiatrist, psychologist, and therapist) as dependent variables. The multivariate \( F \) tests were significant for both activity scores, \( F(1,109) = 5.226, p = .002 \), and value scores, \( F(1,109) = 6.897, p < .001 \), for items describing mental health professionals. Univariate follow-ups indicated that younger adults viewed psychiatrists, psychologists, and therapists as more active than did older adults (see Table 2). Further univariate follow-ups revealed that younger adults had more positive views of psychiatrists, psychologists, and therapists than older adults. There were no significant effects for either potency scores, \( F(1,109) = 1.520, p = .213 \), or understandability scores, \( F(1,109) = 5.711, p = .035 \), for items describing mental health professionals. In addition, there were no significant effects for sex or sex by age group interactions for items describing mental health professionals.

To investigate differences between younger and older adults with regard to receptivity to mental health services, a 2 (age group) \( \times \) 2 (sex) MANOVA was computed using scores on the nine receptivity items as dependent variables. There was a significant overall effect, \( F(1,109) = 2.920, p < .001 \). Univariate follow-up analyses indicated that older adults had more accepting attitudes regarding the utilization of mental health services than did younger adults. As shown in Table 3, compared to the younger adults, older adults agreed more strongly with the following statements: I would seek care if I thought I had a mental or emotional problem, I could talk to a professional about my problems, and I would go out of my way to obtain psychological services. Younger adults agreed more strongly with the statement that medicine alone will help most people get over their psychological problems. Again, there were no significant effects for gender or gender by age group interactions.

Prediction of Mental Health Receptivity

To determine which variables best predicted receptivity to mental health services for older and younger adults, individual stepwise multiple regression analyses were computed. Both analyses were computed with general receptivity as the criterion and age, education, and attitude scores as predictors. The predictors of general receptivity of mental health services varied between the two samples. Specifically,
### TABLE 2

**Age Group Differences in Mean Attitudes Toward Mental Health Professionals**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Older adults (n = 65)</th>
<th>Younger adults (n = 49)</th>
<th>F</th>
<th>( \omega^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>4.00</td>
<td>.83</td>
<td>4.42</td>
<td>1.24</td>
</tr>
<tr>
<td>Psychologists</td>
<td>4.25</td>
<td>.68</td>
<td>4.93</td>
<td>1.02</td>
</tr>
<tr>
<td>Therapists</td>
<td>4.29</td>
<td>.68</td>
<td>4.77</td>
<td>1.09</td>
</tr>
<tr>
<td>Value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>4.69</td>
<td>.73</td>
<td>5.55</td>
<td>1.16</td>
</tr>
<tr>
<td>Psychologists</td>
<td>4.85</td>
<td>.73</td>
<td>5.34</td>
<td>.78</td>
</tr>
<tr>
<td>Therapists</td>
<td>4.80</td>
<td>.78</td>
<td>5.39</td>
<td>.72</td>
</tr>
<tr>
<td>Potency</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>4.38</td>
<td>.81</td>
<td>4.65</td>
<td>.93</td>
</tr>
<tr>
<td>Psychologists</td>
<td>4.38</td>
<td>.89</td>
<td>4.59</td>
<td>.97</td>
</tr>
<tr>
<td>Therapists</td>
<td>4.38</td>
<td>.89</td>
<td>4.33</td>
<td>.84</td>
</tr>
<tr>
<td>Understandability</td>
<td>4.55</td>
<td>.77</td>
<td>4.67</td>
<td>.98</td>
</tr>
<tr>
<td>Psychiatrists</td>
<td>4.80</td>
<td>.77</td>
<td>4.82</td>
<td>1.03</td>
</tr>
<tr>
<td>Psychologists</td>
<td>4.80</td>
<td>.77</td>
<td>4.62</td>
<td>.91</td>
</tr>
</tbody>
</table>

Note: *p < .05, **p < .01, ***p < .001

### TABLE 3

**Age Group Differences in Mean Receptivity to Mental Health Services**

<table>
<thead>
<tr>
<th>Items</th>
<th>Older adults (n = 65)</th>
<th>Younger adults (n = 49)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>1. People should seek care if they have a mental or emotional problem.</td>
<td>6.03</td>
<td>1.32</td>
<td>6.02</td>
</tr>
<tr>
<td>2. I would seek care if I thought I had a mental or emotional problem.</td>
<td>5.80</td>
<td>1.41</td>
<td>5.41</td>
</tr>
<tr>
<td>3. I prefer to handle my emotional problems by myself.</td>
<td>4.17</td>
<td>1.66</td>
<td>4.73</td>
</tr>
<tr>
<td>4. I feel a professional could understand my problems.</td>
<td>4.91</td>
<td>1.29</td>
<td>5.65</td>
</tr>
<tr>
<td>5. I could talk to a professional about my problems.</td>
<td>5.17</td>
<td>1.44</td>
<td>4.57</td>
</tr>
<tr>
<td>6. I would go out of my way to obtain psychological services.</td>
<td>4.41</td>
<td>1.54</td>
<td>3.37</td>
</tr>
<tr>
<td>7. Medicine alone will help most people get over their problems.</td>
<td>2.29</td>
<td>1.37</td>
<td>2.84</td>
</tr>
<tr>
<td>8. Good counseling is very important in helping people with their</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>psychological problems.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I would not seek help from psychological services because of what</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>my friends and family might think.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Means on 7-point Likert scales from 1 = strongly disagree to 7 = strongly agree

*p < .05, **p < .01
TABLE 4

Percentages and Means of Younger (Y) and Older (O) Adults' Agreement with Possible Reasons Older Adults Underutilize Mental Health Services

<table>
<thead>
<tr>
<th>Items</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Older people do not need psychological services.</td>
<td>Y 83.3%</td>
<td>6.1%</td>
<td>10.2%</td>
<td>2.48</td>
<td>1.22</td>
</tr>
<tr>
<td></td>
<td>O 73.9%</td>
<td>10.8%</td>
<td>15.4%</td>
<td>2.72</td>
<td>1.60</td>
</tr>
<tr>
<td>2. Psychological services do not help older people; it is too late</td>
<td>Y 83.3%</td>
<td>4.1%</td>
<td>12.2%</td>
<td>2.29</td>
<td>1.38</td>
</tr>
<tr>
<td>in life.</td>
<td>O 76.6%</td>
<td>9.2%</td>
<td>13.9%</td>
<td>2.56</td>
<td>1.55</td>
</tr>
<tr>
<td>3. Professionals try to help older adults in the wrong ways.</td>
<td>Y 85.4%</td>
<td>8.2%</td>
<td>6.1%</td>
<td>2.31</td>
<td>1.17</td>
</tr>
<tr>
<td></td>
<td>O 56.3%</td>
<td>20.0%</td>
<td>23.1%</td>
<td>3.30</td>
<td>1.62</td>
</tr>
<tr>
<td>4. Older adults are afraid that they might be put in nursing homes.</td>
<td>Y 10.4%</td>
<td>12.2%</td>
<td>75.5%</td>
<td>5.42</td>
<td>1.51</td>
</tr>
<tr>
<td></td>
<td>O 21.9%</td>
<td>15.4%</td>
<td>60.0%</td>
<td>4.86</td>
<td>2.64</td>
</tr>
<tr>
<td>5. Older people do not know enough about how psychological services can help them.</td>
<td>Y 20.8%</td>
<td>12.2%</td>
<td>75.5%</td>
<td>5.42</td>
<td>5.41</td>
</tr>
<tr>
<td></td>
<td>O 10.9%</td>
<td>15.4%</td>
<td>72.3%</td>
<td>5.27</td>
<td>1.39</td>
</tr>
</tbody>
</table>

there were three significant predictors of receptivity for older adults that accounted for approximately 33% of the variance in the receptivity score. More specifically, the best predictor of receptivity for older adults was mean potency ratings of mental health practitioners ($R = .40$), followed by mean value ratings for patients ($R = .50$), followed by age ($R = .58$). In contrast, there were only two significant predictors of receptivity for younger adults accounting for approximately 23% of the variance in the receptivity score. Specifically, the best predictor of receptivity for younger adults was mean activity ratings for patients ($R = .36$), followed by mean activity ratings for mental health practitioners ($R = .48$).

Descriptive Data Concerning Possible Barriers to Mental Health Usage

Finally, in an attempt to gain insight into some of the possible reasons for older adults' underutilization of mental health services, both older and younger participants' responses to five statements were examined and are presented in Table 4. Compared to younger adults, older adults indicated less disagreement to the following statements: (a) older adults do not use psychological services because they do not need those services, (b) older adults do not use psychological services often because these services do not help older people, and (c) older adults do not use psychological services often because professionals try to help older people in the wrong ways. Fewer older respondents than younger respondents indicated agreement with the statement that older adults do not use psychological services because they are afraid of being put in a nursing home; whereas, a greater percentage of older respondents than younger respondents believed older adults use psychological services less because older people do not know enough about how such services can help them.

In addition to the above analyses, both older and younger participants' responses to five similar statements were examined and compared to identify possible explanations for younger adults' underutilization of mental health services (see Table 5). A greater percentage of younger adults than older adults did not agree with the following statements: (a) younger adults avoid psychological services because they do not need such services, (b) younger adults do not use psychological services because these services do not help younger people, (c) mental health professionals try to help younger people in the wrong ways, and (d) young adults are afraid of being admitted into a psychiatric institution. Finally, about equal percentages of younger and older adults agreed that young adults do not use psychological services because they don't know enough about how such services can help them.

Discussion

Overall, the results of the current study supported the hypothesis that older (65 and over) and younger (18-24) adults possess different attitudes regarding mental health professionals and people with mental illness and have different levels of receptivity to mental health services. Only partial support, however, was found for the hypothesis that older adults have less favorable views about mental health issues than younger adults.
TABLE 5

Percentages and Means of Younger (Y) and Older (O) Adults’ Agreement with Possible Reasons Younger Adults Underutilize Mental Health Services

<table>
<thead>
<tr>
<th>Items</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Younger people do not need psychological services.</td>
<td>Y 87.8%</td>
<td>10.2%</td>
<td>2.0%</td>
<td>2.45</td>
<td>.97</td>
</tr>
<tr>
<td></td>
<td>O 70.3%</td>
<td>20.0%</td>
<td>9.2%</td>
<td>2.86</td>
<td>1.27</td>
</tr>
<tr>
<td>2. Psychological services do not help younger people.</td>
<td>Y 91.8%</td>
<td>2.0%</td>
<td>6.1%</td>
<td>2.02</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>O 81.3%</td>
<td>12.3%</td>
<td>6.2%</td>
<td>2.34</td>
<td>1.35</td>
</tr>
<tr>
<td>3. Professionals try to help younger adults in the wrong ways.</td>
<td>Y 75.5%</td>
<td>12.2%</td>
<td>12.2%</td>
<td>2.45</td>
<td>1.40</td>
</tr>
<tr>
<td></td>
<td>O 56.3%</td>
<td>24.6%</td>
<td>18.5%</td>
<td>3.21</td>
<td>1.48</td>
</tr>
<tr>
<td>4. Younger adults are afraid that they might try to put them in an institution.</td>
<td>Y 40.8%</td>
<td>22.4%</td>
<td>36.7%</td>
<td>3.88</td>
<td>1.81</td>
</tr>
<tr>
<td></td>
<td>O 34.4%</td>
<td>29.2%</td>
<td>35.4%</td>
<td>4.00</td>
<td>1.43</td>
</tr>
<tr>
<td>5. Younger people don’t know enough about how psychological services can help them.</td>
<td>Y 16.3%</td>
<td>10.2%</td>
<td>71.4%</td>
<td>5.39</td>
<td>3.24</td>
</tr>
<tr>
<td></td>
<td>O 9.4%</td>
<td>18.5%</td>
<td>70.8%</td>
<td>5.23</td>
<td>1.29</td>
</tr>
</tbody>
</table>

First, evidence from this study demonstrated it was a mistake for previous researchers (e.g., McGuire & Borowy, 1979; Olmsted & Durham, 1976) to generalize college students’ attitudes to persons of all ages. Clearly, there is a greater degree of heterogeneity in attitudes regarding mental health issues among age groups in the general population.

Specifically, this study found both older and younger adults hold neutral to negative attitudes about persons described as having mental illness. These results support L jurisdiction and Young’s (1992) finding that older adults have negative attitudes toward mental health services. In the present study, however, compared to the younger adults, older adults had more favorable views of people with mental illness. This finding suggests that older adults may view mental illness as less stigmatizing than do younger adults. Thus, Blank’s (1977) hypothesis that older people perceive mental illness differently and as more stigmatizing than younger adults was contradicted by the present study.

The present study also revealed that older adults view mental health professionals less favorably than do younger adults. This more negative attitude of older adults toward psychological professionals lends some support to Lasoski (1986) who posits that mutual aversion between the elderly and mental health professionals prevents the elderly from utilizing psychological services. Interestingly, older adults appeared to have more accepting attitudes about the utilization of mental health services than younger adults. Older respondents in the present study generally disagreed with the statements that psychological services do not help older people because it is too late in life and that mental health professionals try to help older adults in the wrong ways. In addition, older respondents were also moderately receptive to personally seeking assistance from mental health professionals.

Younger adults, however, had more favorable views of mental health professionals than older adults; yet, younger adults indicated they were slightly less favorable to the idea of seeking care if they had a mental or emotional problem, less likely to talk to a professional about their problems, and were less likely to go out of their way to obtain psychological services than older adults. This pattern could be explained by the fact that many of the younger adults were in an introductory psychology class and possibly considering a career in psychology. These individuals may value the role of psychological professionals because they aspire to that role, although they may believe they personally would not need such services. In addition, because the older adults in the present study actively sought membership in a hospital-based group, they may be more receptive to the idea of seeking assistance from mental health services in general.

Compared to older adults, younger adults in the present study agreed more strongly with the statement that medicine alone would help most people get over their psychological problems. It is possible that younger adults are more accepting of drug treatments because they socialized in an era teaching the benefits of miracle drugs that provide "quick fixes."
Both older and younger adults in this study indicated they did not believe they would avoid psychological services because of anticipated negative reactions from family or friends. This finding contradicts Leaf et al. (1987) who found that compared with younger and middle-aged groups, a greater proportion of older adults believed their families would be distressed if they were to seek mental health treatment. This contradiction might be explained by the fact that older adults for this study had already chosen to be in a specialized group for persons over the age of 55; whereas, Leaf et al. obtained a random sample from the community.

Finally, this study investigated older and younger respondents' opinions regarding possible explanations for both older and younger adults' underutilization of mental health services. Older and younger respondents agreed that older people need psychological services and that such services help older adults. Both younger and older respondents, however, believed younger and older people do not know enough about how psychological services can help them. Thus, it appears lack of knowledge about psychological services may impede younger and older adults from seeking assistance from mental health services. Furthermore, the results of the current study indicate that younger adults are fearful of being put in a nursing home as a result of seeking help for mental illness, whereas younger adults are not generally fearful that they will be put in a psychiatric institution.

Because this study revealed few psychological barriers that could account for the underutilization of mental health services, it is likely that other barriers (e.g., transportation problems or financial worries) may prevent people from seeking assistance from mental health services. Thus, a logical next step for future research would be to conduct more thorough investigations of the practical barriers. It should also be noted that this study concentrated on only younger and older age groups, both of which are underrepresented in mental health services; it did not investigate the attitudes of middle-aged adults (25–64), who have the highest utilization rate of mental health services. Future research should include younger, middle-aged, and older adults to obtain the most clear and complete picture of mental health service utilization. In addition to the previous suggestions, efforts should be made to gather data from more representative samples. This study is limited because it used college students who were enrolled in a psychology class and older adults who were members of a hospital-based group for persons over age 55; thus, the results may not generalize to other younger and older adults.

Several implications for outreach programs aimed at encouraging older adults to use psychological services emerge from this study. First, outreach programs should be based on research conducted specifically with older adults and not rely on generalizations from younger adults. Programs should also address older adults' neutral-to-negative views of mental health professionals by promoting more positive images of those professionals. Next, outreach programs might find the most success by focusing their efforts on eliminating the practical barriers including financial worries and transportation problems. It is important for program developers to remember that both younger and older adults are underserved and possess negative attitudes about mental health issues; therefore, the idea that negative attitudes regarding mental illness impede the utilization of mental health services cannot be dismissed entirely. Finally, because the majority of older adults indicate they lack knowledge about how psychological services work, outreach programs should strive to increase the fund of information about mental health services and make it readily accessible to older people.

References


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Sincere appreciation is expressed for the hard work on the part of the following individuals who served as reviewers for this issue. Without the assistance of such dedicated professionals, the Psi Chi Journal simply would not be able to function!

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