RESPONDING TO AN ONLINE COMMERCIAL DEPRESSION ASSESSMENT QUESTIONNAIRE AND ITS INFLUENCE ON THE ASSESSMENT OF DEPRESSION IN OTHERS

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by

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SUPERVISING PROFESSOR: HARVEY GINSBURG

The purpose of this project was to examine direct-to-consumer marketing (DTCA) of prescription drugs. Specifically, this project attempted to measure whether or not taking online commercial depression self-assessments might have an influence on how a person later responded on clinical depression inventories. There were two hypotheses for this project. The first predicted that subjects who have taken Prozac's self-assessment quiz (P-ZAT) would have significantly higher posttest scores on the Beck Depression Inventory II (BDI-II) compared to a control group who had not taken the P-ZAT. The second predicted that after taking the P-ZAT, females would have significantly higher BDI-II posttest scores than males. After an extensive review of the current literature, it appears that this project is the first of its kind.

INTRODUCTION

Literature Review:

Direct to Consumer Advertising (DTCA) of prescription drugs is the promotion of the availability of prescription drug products to the general public through the mass media (Basara 1992). The most common type of DTCA are print ads, followed by television commercials and mass mailings (Thomas 2004). There are two types of DTCA: product-specific advertisements and informational advertisements. In product-specific advertisements, specific pharmaceutical products are mentioned by brand name. If the condition that the pharmaceutical product is intended to treat is mentioned in the advertisement, then the FDA also requires that the advertisers should disclose information about the product's potential side-effects, interactions, efficacy data and any other relevant precautionary statements. In informational advertisements, no reference to a specific pharmaceutical product is made. The intent of these advertisements is to raise public awareness about a specific disease or condition and to provide information about available treatment options (Basara 1992). Proponents of DTCA argue that this form of advertising is beneficial because it empowers consumers by informing them about treatment options. DTCA may lead patients to ask their physician about drugs that they may have not previously considered (Monaghan et al 2002). Supporters also argue that these ads could help increase public awareness about undertreated conditions such as depression or hypertension (Sorofman 1992).

DTCA - the Early Years.

The first DCTA for pharmaceutical products appeared in Reader's Digest in 1981 (Woloshin et al 2001). This form of advertising was proven to be highly effective. For example, in 1982, Eli Lilly's aggressive advertising campaign for the antiarthritic drug Oraflex showed in increase from 2,000 prescriptions per week to over 55,000 prescriptions per week in just a five-month period. However, after a series of severe side effects and deaths associated with the using the drug were reported, Eli Lilly was pressured to pull their product from the market because of safety concerns.

Due in part to the Oraflex incident and in part to the rapid increase in DTCA, the FDA imposed a moratorium on DTCA from 1983-1997 so that the issue could be further evaluated. During this prohibition, the FDA held a series of hearings with consumers and with representatives from the pharmaceutical industry as well as conducting their consumer research so that existing DTCA legislation could be reviewed and improved (Basara 1992; Hollon 2004; Medawar 2000; McLellan 2002).

DTCA - 1997 to Present:

Due in part to intense pressure by prescription drug companies, the FDA lifted the moratorium on DTCA in 1997 and the number of prescription drugs advertised in the media exploded, rising nearly 150% (McLellan 2002). 60% of these ads appear in magazines, 15% appear in Sunday newspapers, 15% appear on television, and the final 10% appear in other sources (Thomas 2004). Between 1997 and 2001, spending for DCTA rose by 145% while spending on research and development only rose by 59% (Hollon 2004; McLellan 2002). Over the past 10 years, there has been a shift by pharmaceutical advertisers from Direct-to-Doctor Advertising to DTCA. In 2000,

advertisers spent $685 spent on ads for consumer magazines & newspapers while spending only $473 on medical journal ads. Sales figures suggest that DTCA is highly effective (Woloshin et al 2001). "The 25 drugs that contributed most to the increase in retail sales of pharmaceuticals in 1999 accounted for 40.7% of the overall $17.7 billion rise in spending. Most of these drugs were heavily advertised to the public and experienced a sharp growth in sales - an aggregate 43% in a single year. In contrast, the growth on sales in all other prescription drugs from 1998 to 1999 was 13.3%" (Medawar 2000, pp. 83-84). Between 1999 and 2000, Drug companies spent about 95% of their advertising budget promoting 50 drugs and these 50 advertised drugs accounted for $9.94 billion (or about 50%) of the increase in prescription drug spending in US during that time period. For every dollar spend on television advertising, prescription drug companies stand to make an average of $1.69 in sales. The ratio for print ads is even higher - every dollar spent on advertising brings in an average of $2.51 in product sales (LE 2002). In a 1998 survey of 175,00 households, the NDP Group, a Port Washington, NY-based market research company, found 25% respondents reported that DTCA changed the way they took care of medical problems and 20% reported contacting their physicians to discuss medication due to such advertising. A 1995 Time magazine survey found that 99% of 4000 physicians reported that they would consider prescribing DTCA drugs versus 84% in 1989. More physicians also reported patients asking for pharmaceutical products by brand name (Thomas 2004). Another survey found that 67% of adult Americans had reported seeing a prescription drug ad in the past month and that 10% had asked their physicians for a prescription that they had learned about from one of those ads. 73% of those who had talked to their physicians had received prescription for the requested

drug (Woloshin et al 2001).

Concerns About DTCA:

The American Medical Association (AMA) voiced concerns that DTCA might be harmful to patients and could be disruptive to physician-patient relationships and may inappropriately increase patient demand for specific (and generally costly) prescription products (Woloshin et al 2001). In a recent study, 80% of physician surveyed expressed concern about patients being confused about the difference between over-the-counter drugs vs. prescription drugs and also about their patients being confused about drug risks vs. benefits (Hogle 2002). A majority of physicians also reported feeling pressured to comply with their patient's requests for specific prescription drugs. One physician surveyed noted that many "patients feel that the physician's office is the drive-through window at McDonald's where they put their order in and you fill it" (Hogle 2002, pp. 297-298). In another study by the American Association of Pharmaceutical Scientists (AAPS), 91% of all physicians surveyed reported feeling pressure to accede to patient requests for prescription drugs. In all, 6% felt a lot of pressure, 47% felt some pressure, 38% felt a little pressure and 9% of doctors felt no pressure to comply with their patients' prescription drug requests (Pirisi 1999).

In 1983 and again in 1991, the National Association of Pharmaceutical Manufacturers (NAPM), an organization of generic drug manufacturers, urged the FDA to ban DTCA, citing the potential for deception on the part of the advertisers and insufficient knowledge about prescription drugs on the part of the consumer. The NAPM also expressed concern that patient demand for brand-name drugs would result in lower sales figures for generic products. HMOs have also voiced concerned

because patient demand for brand-name drugs instead of generics might drive up their costs (Thomas 2004).

Research on the Accuracy of DTCA:

In a 2002 study, 50% of consumers thought that DTCA carried government's imprimatur and 43% believe that only "completely safe drugs" could be advertised to the public (Hollon 2002). This may not always be the case. Between 1997-2001, the FDA issued 94 notices of violations for drug ads where the product's benefits were exaggerated and/or it risks were minimized (LE 2002). However, such notices may not be very effective in policing the pharmaceutical industry. Once the FDA has been alerted that a pharmaceutical company is running a misleading ad, it takes the agency about 6 months to investigate and verify the charge. Once the offender has been alerted, a 6 month grace period is given to retract the ad. Drug companies usually change their ads yearly anyway, so very few advertisers are actually punished (Napoli 2004).

Inaccurate and/or misleading DTCA information is surprisingly commonplace. A 1997 *Consumer Reports* study found problems with the accuracy 28 print ads for various prescription drugs. The ads were evaluated by a panel of 32 medical specialists who found that 33% of ads surveyed were inaccurate or left out important information and only about 50% of the ads conveyed important information on adverse effects in main promotional text (Thomas 2004).

Similarly, FDA Commissioner Jane Henney cited a 2002 FDA consumer survey that found that 58% of those surveyed thought that DTCA made the drugs appear "better" than they actually were. In another survey, 65% of respondents reported that DTCA was unclear, 21% thought that the ads clear, and only 14%

thought ads did an excellent job of informing consumers about benefits of taking advertised medication. In yet another survey, 33% of 4000 women reported thinking that information presented in DTCA was too difficult to understand (Hollon 2002).

In a survey of 67 print ads from 1998-1999, Wolshin & his colleagues found that 87% of the ads described benefits of using the products being advertised in vague, qualitative terms. Even when benefits of use mere made explicit, only 13% of ads offered any evidence to support their claims. Less than 10% of advertisements mentioned efficacy rates of the products being advertised. None of the ads mentioned financial costs associated with treatment. The researchers also noted that most of the ads, especially those appearing in women's magazines, appealed to emotions, including the desire to get back to "normal" and the desire to prevent a feared outcome (Woloshin et al 2002).

Concerns About Prozac and Other Anti-Depressants:

Last year alone, Prozac sales brought in $645 million for the drug's creator Eli Lilly. Since its introduction in 1987, Prozac remains of the most widely recognized and prescribed prescription products of its kind (Jewell 2004). Although touted by many as a "miracle drug," there is growing evidence that Prozac is being overutilized by physicians who may not be fully aware of the dangers that using this drug may present to patients. Additionally, once a drug receives the FDA's approval for marketing, there are limited government controls in place for what the drug may be prescribed for. Although Prozac has thus far only been approved for depression and obsessive-compulsive disorder, physicians are prescribing it for a host of other off-label conditions such as: seasonal affective disorder (SAD), eating disorders (anorexia and bulimia), obesity, body dysmorphic disorder, anxiety and phobias,

panic disorders, premenstrual syndrome (PMS), drug and alcohol addiction, arthritis, migraines, and behavioral and emotional problems in adolescents and children (Breggin 1994).

There is growing concern that Prozac and other anti-depressants are being over-prescribed. As many as 1 in 6 adults in the United States are estimated to be taking antidepressants. In a nation of approximately 290 million people, over 150 million antidepressant prescriptions (40 million of which were for Prozac alone) were written last year (Saginaw 2004). In a 2004 report released by Norwich Union Healthcare, 80% of physicians surveyed reported over-prescribing anti-depressants and 70% admitted that they prescribed more anti-depressants now than they had 5 years ago (Lincolnshire 2004).

In addition to questions about overuse of Prozac, there have also been concerns about the safety of the product itself. Peter Breggin, M.D., author of *Talking Back to Prozac: What Doctors Aren't Telling You About Today's Most Controversial Drug* (1994), points out that Prozac's adverse effects may be traced back to the way that the drug effects brain chemistry. Prozac alters levels of the neurotransmitter serotonin in the brain and acts as a stimulant to the nervous system. In Breggin's book, Richard Kapit, the FDA psychiatrist who wrote the original safety review for Prozac based on data collected during Prozac's approval process, noted that Prozac's effects more closely resembled those of a stimulant drug than of a drug that causes sedation. Kapit reported that the most frequently seem side-effects of Prozac were insomnia, nausea and nervousness. Other side effects included abnormal sensations and body movements, agitation, agitation, dry mouth, excessive sweating, excitement, irritability, nightmares and palpitations. Less frequently seen side-effects

included psychotic reactions (usually mania or hypomania) and central nervous system (CNS) overstimulation that can result in permanent neurological damage and seizures. All of the aforementioned side-effects are consistent with those of a stimulant. Kappit also noted that Prozac could worsen depression (Breggin 1994). "What did the FDA do regarding [Kapit's] warnings about the dangers of Prozac's stimulant profile and the associated risk of worsening depression? They expunged Kapit's conclusions from the drug's warning label," writes Breggin. "Nowhere in the basic information that must appear in the Physician's Desk Reference or in all of their advertising is Eli Lilly required to indicate that Prozac is in fact a stimulant drug or that it worsens depression" (Breggin 1994, p. 67). When patients first start taking the drug, they may feel a burst of energy, something that is common with stimulants. However, once they build up a tolerance to the drug, they start to feel depressed again and may even begin to feel suicidal. The patient may start to believe that they need more medication and their physician concurs and raises the patient's dosage (Breggin 1994).

In his book, Breggin suggested that Prozac should have never received FDA approval. Eli Lilly handpicked the researchers who were involved in the FDA's product safety trials for Prozac. Given that it can take hundreds of millions of dollars to develop a single drug and that the approval process for that single drug can cost hundreds of millions more, it behooves drug companies put enormous pressure on the FDA and on the drug company's researchers to get the drug approved so that the company can sell their product and make a return and potentially, a profit in the billions, on their initial investment. For the Prozac trials, the researchers were advised to ignore the drug's stimulant properties. Patients who became anxious or

agitated in these studies were given powerful and highly addictive sedatives such as Ativan, Klonopin, Valium, and Xanax. Breggin stated that the use of these sedatives is an intervening variable thus invalidates the data collected. Any effects observed in the patients cannot be solely attributed to Prozac – the effects may be a result of a combination of Prozac in conjunction with the sedatives. Breggin also took issue with the small sample sizes used in this research. Eli Lilly claims that 11,000 people took part in these clinical trials for Prozac. However, upon review of the FDA's data, Breggin found that only 288 people completed the four and six-week trials upon which Prozac's approval was based. He also noted that these trials were not long enough to observe any long-term effects of Prozac usage (Breggin 1994).

Additionally, there may be questionable political entanglements involved in Prozac's approval. Since the Reagan administration, big corporations have garnered increasing control over government policy. Former President George Bush sits on the Board of Directors for Eli Lilly and during his time in office, he eased restrictions on the FDA's approval process for new drugs. Additionally, when former Vice President Dan Quayle was in office, he headed the Council on Competitiveness. Quayle asked Eli Lilly to help with the FDA's evaluation process for new drugs - this resulted in eased restrictions and in taking years off of the time that it takes to get new drugs approved (Breggin 1994).

A 1990 letter to the House of Representatives from the Citizens Commission on Human Rights (CCHR), an organization which investigates human rights violations in psychiatry, warned that Eli Lilly was making false claims about Prozac having fewer side effects than any other antidepressant drug on the market and pointed out that the FDA's own research data showed that Prozac had received twice

as many adverse reaction reports in just two years as Elavil (another antidepressant drug) had received in 20 years. Prozac also had more adverse reactions in 2 years than Valium, a widely prescribed drug, had received in 20 years (CCHR 1990).

In March of this year, the FDA released a report citing concerns about the way that Prozac and several other similar drugs have been tested and marketed to the public. For example, some of these antidepressants have been marketed to treat conditions (such as social phobia, obesity, and smoking cessation) that they have not been approved for by the FDA. Additionally, the report indicated that important information about safety from product research trials on children and young adults might have been suppressed. The report also recommended that warning labels should include much more explicit descriptions of possible side-effects (for example, increased hostility and an increased risk of suicide) (Mathews 2004).

As of March 2004, Eli Lilly is under investigation by US Department of Justice into marketing practices for Prozac. It has been alleged by the Department of Justice, as well as by another separate lawsuit recently filed by the state of Pennsylvania, that among other things, some physicians who prescribed Prozac to patients received a kickback. Eli Lilly has been under federal investigation since 2002 for similar charges on their marketing practices for another product, Evista (Teather 2004).

Theoretical Framework:

With the advent of new technology and the increasing popularity of the Internet, web-based marketing has grown exponentially and has allowed for new forms of DTCA, including online self-assessments. For example, the commercial depression self-assessment at Prozac's website at http://www.prozac.com, allows

visitors to take a short 20-question depression screening questionnaire. The questionnaire is automatically scored and the results are shown to the visitor. If the visitor's score indicates that they are depressed, then the visitor is advised to print out their results and take the results to a doctor. Since the Prozac website is commercially-run, the purpose of which is to sell medication for depression, it can be argued that the assessment tool on that website lacks objectivity since it is obviously in the company's best interests if the website visitor's score comes out in the "depressed" range so that the visitor is subsequently referred to a physician for treatment and receives a prescription for the same product being advertised on the website.

Additionally, some medical experts are now warning those who would use the Internet as a self-diagnostic tool about "cyberchondria" – a phenomenon wherein people browsing Internet sites incorrectly diagnose themselves based on information that they find during their web-surfing and then seek treatment from their physicians based on this information. An 18-month study by the University of Derby in England found that many health-related websites (covering topics ranging from cancer to the common cold) contained vague, misleading or inaccurate information that could easily lead people to misinterpret their symptoms or to incorrectly diagnose themselves (Redfern 2004).

Since its inception into the scientific community in 1948, exhaustive volumes of research have consistently supported the theory of the Self-Fulfilling Prophecy (SFP). According to this theory, once a person is labeled (such as by a teacher, a manager or by another perceived authority figure), afterwards, his/her behavior will generally be consistent with that label (Eden 1984; Eden 1990;

Rosenthal 1995; Salomon 1981). For example, if a person is labeled as being "mentally ill," then he or she may feel obliged to act into that role. Evidence even suggests that our own expectations about ourselves can be just as powerful as the expectations that others have about us in shaping future behavior (Eden 1984). In the context of this experiment, it is predicted that once a person has been labeled as being "depressed" by an online commercial depression inventory, then he or she will continue to perceive him/herself as being depressed and his/her responses on future depression inventories will be consistent with the responses of a depressed person.

The Purpose of This Project:

The purpose of this project was to examine direct-to-consumer marketing (DTCA) of prescription drugs. Specifically, this project attempted to measure whether or not taking an online commercial depression self-assessments might have an influence on how a person later responded on clinical depression inventories. If these advertisements can cause people to exaggerate perceptions about depressive symptoms or can convince them that they are in need of medication, then they may end up taking a dangerous medication that they do not need. Taking unnecessary prescription medication is not only a waste of resources (needless visits to the physician's office, the expense of filling the prescriptions, etc.), but it can cause long term side effects or can even be fatal the patient. Additionally, if psychologists and physicians are busy dealing with patients who don't really need treatment, then it diverts their attention from those patients who actually do need help.

Due to IRB restrictions (i.e. it is unethical to do a study that may result in research participants becoming depressed or anxious), the subjects for this project rated a fictitious individual and not themselves. After an extensive review of the

current literature, it appears that this project is the first of its kind.

Hypotheses:

There were two hypotheses for this project. The first hypothesis predicted that subjects who have taken Prozac's self-assessment quiz (P-ZAT) would have significantly higher posttest scores on the Beck Depression Inventory II (BDI-II) as compared to a control group who had not taken the P-ZAT. The second hypothesis predicted that after taking the P-ZAT, females would have significantly higher BDI-II posttest scores than males. For the first hypothesis, the independent variable was taking the P-ZAT. For the second hypothesis, the subjects' gender was treated as a co-variant. For both hypotheses, the dependent variable was the subjects' BDI-II posttest scores.

METHOD:

Subjects:

Participants for this experiment were recruited from undergraduate psychology classes during the Summer 2004 semester. There were a total of 77 subjects. 56 of the subject were female and 21 were male. Subjects' ages ranged between 17-32 years with a mean age of 22 years. 57 of the subjects were Caucasians, 8 were Hispanics, 6 were Asian-Americans, 4 were African-Americans and 2 belonged to other groups. 41 of the subjects were seniors, 19 were juniors, 12 were sophomores and 5 were freshmen. 32 were psychology majors and 45 were majoring in other fields. 38% of the subjects reported that they had been treated or were currently being treated for a condition such as depression or anxiety. 36% said that they had an immediate family member who had been treated or who was currently undergoing treatment for such a condition. 68% of the participants said that one or more of their close friends had been treated or were currently undergoing treatment for depression or anxiety. 31% of the subjects were using prescription psychiatric medications such as Prozac or Zoloft or had used them in the past. 32% reported that their immediate family members were using psychiatric medications or had used such medicines in the past. 56% of the subjects said that one or more of their close friends were currently using or who had in the past used these types of medications.

Materials/Procedure:

The 77 subjects were randomly assigned into either the experimental group or the control group. There were 38 subjects in the experimental group and 39 subjects in the control group. Based on group assignment, the subjects were instructed to visit one of two websites: http://www.txstate.edu/~vfenter/psych/start1.html for the experimental group and http://www.txstate.edu/~vfenter/psych/start2.html for the control group. For the purposes of ecological validity, the subjects were allowed to visit the websites ad libitum. At the beginning of each website, the subjects were asked to read the following paragraph and respond accordingly:

> "John Doe/Jane Doe is an undergraduate at Texas State University. For whatever reason, he/she has decided to take one of the self-tests for depression available on the Internet. Please complete the following surveys the way that you believe that John/Jane, the student who has decided to take the Internet depression survey, would complete them. Thank you for your help on this project."

Each website had the same brief preliminary questionnaire which measured subjects' attitudes about psychiatric drugs and which also collected basic demographic information (age, gender, ethnicity, etc.). Each website also had the two sessions of the BDI-II (a pretest and posttest) and either the Campus Life Questionnaire (a 20 question questionnaire created for this project with very general questions such as: on a scale of 1-4, rate how satisfied you are with the classes you have taken at Texas State University; on a scale of 1-4, rate how satisfied you are with the campus bookstore, etc.) or the P-ZAT (the 20 question questionnaire from Prozac's website). The experimental group took the P-ZAT. The control group took the Campus Life Questionnaire (CLQ). Both groups took the split-half form of the BDI-II once before and once after taking either the P-ZAT or the CLQ. After taking

the second half of the BDI-II, all of the subjects were directed to a final page with a debriefing statement and that disclosed the purpose of the experiment.

Group:	Step 1:	Step 2:	Step 3:	Step 4:
Experimental Group:	Fill out demographics questionnaire	Take first half of the BDI-II	Take the P-ZAT	Take the last half of the BDI-II
Control Group:	Fill out demographics questionnaire	Take the first half of the BDI-II	Take the CLQ	Take the last half of the BDI-II

RESULTS:

The data collected was entered into SPSS. A difference (d) score was obtained for each subject by subtracting his/her BDI-II posttest score from his/her pretest score. An ANOVA co-varied for gender was run to analyze the data. The p value for the ANOVA was set at 0.05. The total SS was 20,754.321. The SS for gender was 272.173. The SS for group was 310.732. The SS for gender-group interaction was 49.179. The total df was 76. The df for gender was 1. The df for group was 1. The df for gender-group interaction was 1. The MS for gender was 272.73. The MS for group was 310.732. The F value for gender was .996. The F value for group was 1.138. The F value for gender-group interaction was .180. (See Table 1.)

Based on the results of the ANOVA, there was no statistically significant difference between the d scores of the experimental group versus the d scores for the control group. Although the d scores for the female subjects were slightly higher than the d scores for the male subjects, there was no statistically significant difference between genders found. (See Figure 1.)

It should be noted that previous researchers have found a .76 correlation for concurrent validity between the Zung Assessment Tool (the test off of which the P-ZAT was based) and the BDI-II. This project found a concurrent validity rate of .66 between the P-ZAT and the BDI-II. Also, there is a .86 test-retest correlation for the split-half form of the BDI-II used in this project (DeVilly 2003).

According to data collected by the National Institute of Mental Health, during a 12-month period, approximately 10% of the adult population will suffer from some form of depressive disorder (NIMH 2004). In the sample in this study, approximately 12% of the subjects scored high enough on the Beck Depression Inventory to be considered clinically depressed. This number is nearly identical to the NIMH's data.

DISCUSSION/CONCLUSION:

It was predicted that after taking the P-ZAT, subjects in the control group would score significantly higher on the Beck Depression Inventory II (BDI-II) compared to a control group who have not taken the P-ZAT. However, the data collected did not support this hypothesis. One problem with this study is that there were only 77 subjects total and only 38 subjects in the experimental group. If subsequent studies are done on this topic, it would be wise to dramatically increase the number of participants. Doing so would likely provide a clearer picture about the effects (if any) on subjects' perceptions about depression and may yield a different outcome than what was observed here.

Second, it was predicted that females in the experimental group would have significantly higher d scores than males on the BDI-II posttest since prior research has suggested that females have a greater level of susceptibility to external priming (Johar et al. 2003). While the female subjects did score slightly higher, they did not score significantly higher and so, once again, the hypothesis was not supported by the data collected. It should be pointed out that in this study, 73% of the subjects were female while only 27% were male. In any future studies, ideally the ratio of female to male subjects should be increased to 50:50 to determine if there are any significant gender differences in the way in which subjects respond.

In addition to the limited number of subjects, another point of concern is the experimental design itself. Answering the questions about depression on the pretest

may have sensitized the subjects and could have influenced their reactions on the posttest. One way to remedy this problem in future studies would be to use the Solomon Four Square Design and to randomly assign the subjects into one of four groups. Group one would take the pretest, the P-ZAT and the posttest. Group two would take the pretest, the CLQ and the posttest. Group three would take the P-ZAT and the posttest only. Group four would take the CLQ and the posttest only. Group one's posttest results could then be compared to group three's posttest results to see if there are any differences. If this method is used in future research, a large number of subjects will have to be recruited to ensure that each of the four groups has an adequate sample size.

Future research could also look at responses from different age groups. The subjects in this project ranged in age from 17-32 years with a mean age of 22 years. Since the age of the average person in the United States is 36 years old and since the average age of the population has been on the increase for the past few decades as advances in medicine and technology allow people to live longer (US Census Bureau Website 2004), subsequent studies might want to study subjects whose ages better reflect the majority of the population. Researchers might also wish to study middle-aged and elderly populations since those groups are more likely to need prescription medication than young adults or children.

Additionally, this project used only college students as subjects. Since 49% of the adults in the US have never gone to college and since only 24% have a Bachelor's degree or higher (US Census Bureau Factfinder 2004), future researchers might want to study subjects whose level of education better reflects the majority of the population.

Although none of the hypotheses were supported by the data, this project is still pertinent because it adds to the current body of knowledge about DTCA and could potentially lead to further research in this field. In addition, because there were no significant differences between the results of the experimental group and the results of the control group, this would suggest that responding to the depression self-assessment questionnaire on Prozac's website does not lead subjects taking the questionnaire to feel more depressed afterwards and thus, the questionnaire is an innocuous tool for DTCA.

APPENDICES

APPENDIX 1

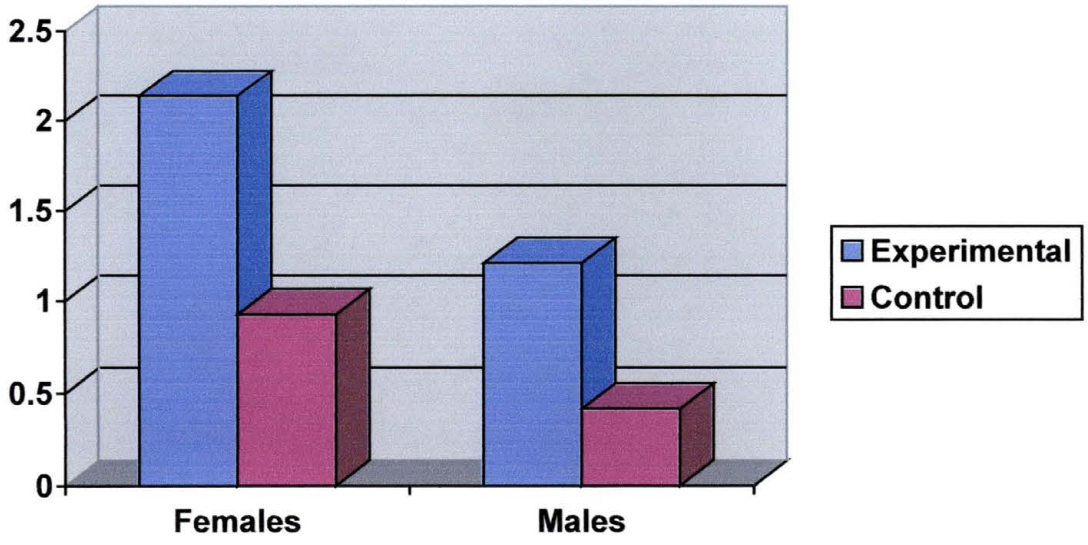
Table 1: ANOVA Co-varied with Gender

Dependent Variable: D Score

Source	*Sum of Squares*	*Degrees of Freedom*	*Mean Square*	*F*	*Significance*
Corrected Model	540.062[a]	2	270.031	.989	.377
Intercept	49.179	1	49.179	.180	.673
Gender	272.173	1	272.173	.996	.321
Group	310.732	1	310.732	1.138	.290
Error	20524.982	74	273.666		
Total	21279.000	77			
Corrected Total	20754.312	76			

a R Squared = .026 (Adjusted R Squared = .000)

Figure 1: Difference Score Means in the Control Group versus Difference Score Means in the Experimental Group



APPENDIX 2A
The Beck Depression Inventory IIa (BDI-IIa)

Please read each item carefully and circle the number next to the answer that best describes how you have been feeling over the past few days.

1.	0 I do not feel sad 1 I feel sad. 2 I am sad all the time and can't snap out of it. 3 I am so sad or unhappy that I can't stand it.
2.	0 I am not particularly discouraged about the future. 1 I feel discouraged about the future. 2 I feel I have nothing to look forward to. 3 I feel that the future is hopeless and that things cannot improve.
3.	0 I do not feel like a failure. 1 I feel I have failed more than the average person. 2 As I look back on my life, all I can see is a lot of failures. 3 I feel I am a complete failure as a person.
4.	0 I get as much satisfaction out of things as I used to. 1 I don't enjoy things the way I used to. 2 I don't get real satisfaction out of anything anymore. 3 I am dissatisfied or bored with everything.
5.	0 I don't feel particularly guilty. 1 I feel guilty a good part of the time. 2 I feel quite guilty most of the time. 3 I feel guilty all of the time.
6.	0 I don't feel I am being punished. 1 I feel I may be punished. 2 I expect to be punished. 3 I feel I am being punished.
7.	0 I don't feel disappointed in myself. 1 I am disappointed in myself. 2 I am disgusted with myself. 3 I hate myself.

8.	0 I don't feel I am worse than anybody else. 1 I am critical of myself for my weaknesses or mistakes. 2 I blame myself all the time for my faults. 3 I blame myself for everything bad that happens.
9.	0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.
10.	0 I don't cry any more than usual. 1 I cry more now than I used to. 2 I cry all the time now. 3 I used to be able to cry, but now I can't even cry even though I want to.
11.	0 I am no more irritated by things than I ever am. 1 I am slightly more irritated now than usual. 2 I am quite annoyed or irritated a good deal of the time. 3 I feel irritated all the time now.

APPENDIX 2B
The Beck Depression Inventory IIb (BDI-IIb)

Please read each item carefully and circle the number next to the answer that best describes how you have been feeling over the past few days.

1.	0 I have not lost interest in other people. 1 I am less interested in other people than I used to be. 2 I have lost most of my interest in other people. 3 I have lost all of my interest in other people.
2.	0 I make decisions about as well as I ever could. 1 I put off making decisions more than I used to. 2 I have greater difficulty in making decisions than before. 3 I can't make decisions at all anymore.
3.	0 I don't feel that I look any worse than I used to. 1 I am worried that I am looking old or unattractive. 2 I feel that there are permanent changes in my appearance that make me look unattractive. 3 I believe that I look ugly.
4.	0 I can work about as well as before. 1 It takes an extra effort to get started at doing something. 2 I have to push myself very hard to do anything. 3 I can't do any work at all.
5.	0 I can sleep as well as usual. 1 I don't sleep as well as I used to. 2 I wake up 1-2 hours earlier than usual and find it hard to get back to sleep. 3 I wake up several hours earlier than I used to and cannot get back to sleep.
6.	0 I don't get tired more than usual. 1 I get tired more easily than I used to. 2 I get tired from doing almost anything. 3 I am too tired to do anything.
7.	0 My appetite is no worse than usual. 1 My appetite is not as good as it used to be. 2 My appetite is much worse now. 3 I have no appetite at all anymore.

8.	0 I haven't lost much weight, if any, lately. 1 I have lost more than five pounds. 2 I have lost more than ten pounds. 3 I have lost more than fifteen pounds.
9.	0 I am no more worried about my health than usual. 1 I am worried about physical problems such as aches or pains, or upset stomach, or constipation. 2 I am very worried about physical problems and it's hard to think of much else. 3 I am so worried about my physical problems that I cannot think about anything else.
10.	0 I have not noticed any recent change in my interest in sex. 1 I am less interested in sex than I used to be. 2 I am much less interested in sex now. 3 I have lost interest in sex completely.
11.	0 I don't have any thoughts of killing myself. 1 I have thoughts of killing myself, but I would not carry them out. 2 I would like to kill myself. 3 I would kill myself if I had the chance.

APPENDIX 3
Prozac's Zung Assessment Tool (P-ZAT)

Read each sentence carefully. For each statement, select the response that best corresponds to how often you have felt that way in the last two weeks. If you are on a diet, answer statements 5 and 7 as if you were not.

	Statement:	Not Often:	Sometimes:	More Often:	All the Time:
1.	I feel downhearted, blue and sad				
2.	Morning is when I feel the best				
3.	I have crying spells or feel like it				
4.	I have trouble sleeping through the night				
5.	I eat as much as I used to				
6.	I enjoy looking at, talking to, and being with attractive men/women				
7.	I notice that I am losing weight				
8.	I have trouble with constipation				
9.	My heart beats faster than usual				
10.	I get tired for no reason				

11.	My mind is as clear as it used to be				
12.	I find it easy to do the things I used to				
13.	I am restless and I can't keep still				
14.	I feel hopeful about the future				
15.	I am more irritable than usual				
16.	I find it easy to make decisions				
17.	I feel that I am useful and needed				
18.	My life is pretty full				
19.	I feel that others would be better off if I were dead				
20.	I still enjoy the things I used to do				

APPENDIX 4
The Campus Life Questionnaire (CLQ)

Read each sentence carefully. For each statement, select the response that best describes your behavior.

	Statement:	Not Often:	Sometimes:	More Often:	All the Time:
1.	I attend school-sponsored social events (example: seminars, presentations, special exhibits, sporting events, etc.).				
2.	I am pleased with the quality of the school-sponsored social events that I have attended so far.				
3.	I believe that Texas State is making a reasonable effort to provide a diverse range of school-sponsored social events for its students.				
4.	I park my vehicle on school property and/or I use the bus to get around campus.				
5.	I am pleased with the quality of the campus busing system.				
6.	I am pleased with the number of, the availability of, and the location of the parking spaces available for students.				

7.	I use the facilities on campus, such as computer labs or the library, to aid with my studies.				
8.	I am pleased with the quality of the facilities available on campus.				
9.	I believe that Texas State University is making a reasonable effort to keep up with recent advances in technology.				
10.	My professors make a reasonable effort to integrate new technology into the classroom.				
11.	I am pleased with the quality of the education that I am receiving at Texas State University.				
12.	I am confident that I will be able to find a good job after graduating from Texas State University.				
13.	I am confident that I will be able to use the skills that I am learning at Texas State University after graduation.				

14.	I make purchases (example: at the bookstore, in the cafeteria, at stores in the student center, etc.) on campus.				
15.	I am pleased with the prices and selection of items available at the school bookstore.				
16.	I would rather shop for my textbooks online or at an off-campus bookstore than at the school bookstore.				
17.	In general, I am pleased with the quality of the classes that I have taken at Texas State University so far.				
18.	I am pleased with the quality of the psychology classes that I have taken so far.				
19.	In general, I am pleased with the quality of the professors at Texas State University.				
20.	I am pleased with the quality of the professors in the psychology department at Texas State University.				

APPENDIX 5
Subject Demographics Questionnaire

Please read and answer the following questions:

1. What is your gender?
   1 = female
   2 = male

2. What is your ethnicity?
   1 = African American
   2 = Asian American
   3 = Caucasian
   4 = Hispanic or Latino
   5 = Native American
   6 = Pacific Islander
   7 = Other

3. How old are you? _____ (enter age here)

4. What is your classification?
   1 = Freshman
   2 = Sophomore
   3 = Junior
   4 = Senior
   5 = Graduate student

5. Are you a psychology major?
   1 = yes
   2 = no

6. Have you ever been treated for a medical condition like depression or anxiety?
   1 = yes
   2 = no

7. Have any of your immediate family members (mother, father, siblings, etc.) ever been treated for a medical condition like depression or anxiety?
   1 = yes
   2 = no

8. Have any of your close friends ever been treated for a medical condition like depression or anxiety?
   1 = yes
   2 = no

9. Are you currently taking or have you ever in the past taken medication (such as Prozac, Zoloft, Paxil, etc.) to treat a medical condition like depression or anxiety?

1 = yes
2 = no

10. Is anyone in your immediate family currently taking or have they ever in the past taken medication (such as Prozac, Zoloft, Paxil, etc.) to treat a medical condition like depression or anxiety?

1 = yes
2 = no

11. Are any of your close friends currently taking or have they ever in the past taken medication (such as Prozac, Zoloft, Paxil, etc.) to treat a medical condition like depression or anxiety?

1 = yes
2 = no

12. In your estimation, what percentage of the population is currently being treated for a medical condition such as depression or anxiety?

1 = 0-9%
2 = 10-19%
3 = 20-29%
4 = 30-39%
5 = 40-49%
6 = 50-59%
7 = 60-69%
8 = 70-70%
9 = 80-89%
10 = 90-100%

13. In your estimation, what percentage of the population is currently taking medications like Prozac, Zoloft, Paxil, etc.?

1 = 0-9%
2 = 10-19%
3 = 20-29%
4 = 30-39%
5 = 40-49%
6 = 50-59%
7 = 60-69%
8 = 70-70%
9 = 80-89%
10 = 90-100%

On a scale of 1-10, please indicate how strongly you agree with the following statements:

VERY STRONGLY AGREE	10 = +++++
STRONGLY AGREE	9 = ++++
AGREE	8 = +++
MODERATELY AGREE	7 = ++
SLIGHTLY AGREE	6 = +
SLIGHTLY DISAGREE	5 = -
MODERATELY DISAGREE	4 = --
DISAGREE	3 = ---
STRONGLY DISAGREE	2 = ----
VERY STRONGLY DISAGREE	1 = -----

14. I believe that medications like Prozac, Zoloft, Paxil, etc. are beneficial for treating medical conditions like depression or anxiety.

15. Using medications like Prozac, Zoloft, Paxil, etc. are a better way to treat conditions like depression or anxiety than other methods such as psychotherapy or cognitive behavioral therapy.

16. I believe that taking medications like Prozac, Zoloft, Paxil, etc. significantly improves the quality of peoples' lives.

17. I would have no problem taking a medication like Prozac, Zoloft, Paxil, etc.

18. I would have no problems with giving my children medications like Prozac, Zoloft, Paxil, etc.

19. I believe that medications like Prozac, Zoloft, Paxil, etc. are safe products.

20. I believe that the benefits of taking medications like Prozac, Zoloft, Paxil, etc. completely outweigh any potential risks from the side effects of taking such medications.

21. For the most part, doctors only prescribe medications like Prozac, Zoloft, Paxil, etc. to those patients who really need them.

22. I don't believe that there is any social stigma associated with taking medications like Prozac, Zoloft, Paxil, etc. as long as a doctor prescribes them to you.

23. When companies like Prozac advertise their products, they aren't just trying to sell more pills - they are also performing a public service because they are trying to educate people about conditions such as depression or anxiety.

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