

ARTICLES

Posttraumatic Stress Disorder, Drug Companies, and the Internet

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The public increasingly acquires information about the causes of, and treatments for, mental health problems from the Internet. This study investigated the top 54 websites about posttraumatic stress disorder (PTSD) in Google and Yahoo! to assess differences in the content of websites funded and not funded by drug companies. In all, 42% of the websites received drug company funding. There was no relationship found between the causes stated and whether the website was drug company funded. Drug company-funded websites, however, gave significantly more emphasis to medication in the treatment of PTSD. This study confirms an earlier study indicating that the pervasive influence of the pharmaceutical industry in the mental health field, designed to maximize product sales, now includes information available to the public via the Internet.

KEYWORDS PTSD, internet, pharmaceutical industry

In recent years the influence of drug companies on the definition of psychiatric disorders and on the practice of health professionals has come under increasing scrutiny (Breggin, 2008; Kempner, 2006; Mintzes, 2002; Moncrieff, 2003; Moynihan & Cassels, 2005; Sharfstein, 2005). Comment has focused on the conflict of interest between the legitimate business goals of the pharmaceutical industry and the role of health professionals in research, community education, and patient care (Doran, Kerridge, McNeill, & Henry, 2006; Healy

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& Thase, 2003; Mather, 2005; Moncrieff & Thomas, 2002; Shooter, 2005). This dynamic, Zuger (2007) suggested, is one that can be seen as either a “problematic tangle of moral compromise or a triumphant health-promoting collaboration.”

The pharmaceutical industry exerts its influence at many different levels within the medical profession. At an individual level, links between professionals and the industry are proliferating and include funding of professional conferences and continuing medical education events (Kempner, 2006). High prescribers receive cash rewards and gifts. Psychiatrists receive payment for consultancy fees, for sitting on advisory boards or boards of directors, and by holding equity in a company (Breggin, 2008; Moncrieff, 2003).

Drug company influence in the health field occurs via advertising and, in New Zealand and the United States, through direct-to-consumer advertising. Direct-to-consumer advertising uses a variety of media, including television, newspapers, journals, educational pamphlets and campaigns, and, more recently, the Internet. Drug advertisements have long been a prominent feature of major psychiatric journals, and in most countries the Internet is used as an additional global marketing tool for medications (Woodlock, 2005). A study of 1,600 general practitioners (family doctors) in New Zealand found that 90% had experienced consultations that were generated by advertising, 68% felt these consultations were often unnecessary, and 40% said they had either started patients on advertised drugs or switched drugs at the patient’s request even though they felt such drugs offered little benefit (Woodlock, 2005).

Pharmaceutical companies fund research informed by the biomedical model of the etiology and pharmacological treatment of psychiatric disorders. Antonuccio, Danton, and McClanahan (2003) suggested that drug company funding of clinical research and drug trials enables companies to fund only those research projects that have a high likelihood of producing favorable results for their products. Drug companies may also terminate negative studies before the results are ready for publication (Antonuccio et al., 2003), and publication bias exists whereby only studies with outcomes favorable to the industry get published (Fava, 2004). Almost 90% of authors published in the *Journal of the American Medical Association* have received research funding from, or acted as a consultant for, a drug company (Healy & Thase, 2003).

Drug companies give funding to patient organizations, including the National Alliance for Mental Illness, the National Mental Health Association in the United States, and SANE and the Depression Alliance in the United Kingdom (Moncrieff, 2003). The Social Anxiety Disorder Coalition, the Post Traumatic Stress Disorder Alliance, and the National Mental Health Awareness Campaign in the United States all operated out of public relations firms hired by drug companies (Moncrieff, 2003). Drug companies also exert an influence at a political level through lobbying and direct funding of political bodies, including drug regulatory agencies (Moncrieff, 2003; Mosher, Gosden, & Beder, 2004).

Drug company–sponsored research has made important discoveries at the biological level and led to the development of medications that have helped relieve distress (Shooter, 2005). Mather (2005) noted that companies, practitioners, and researchers share an interest in promoting new ideas and information that will help patients; drug company marketing helps to get this information to the public. Doran et al. (2006) stated, nevertheless, that the central ethical concern of critics of drug company influence is that “collaboration between health professionals and the pharmaceutical industry may serve the commercial objectives of industry or the acquisitiveness of clinicians, more than legitimate health, educational or research goals” (p. 1511). Within psychiatry there still exist many different and competing paradigms in regard to the etiology and treatment of many psychiatric disorders, and, as a result, the field of psychiatry is particularly susceptible to the influence of the pharmaceutical industry and its biomedical model (Breggin, 2008; Moncrieff & Thomas, 2002).

Moncrieff and Thomas (2002) argued that the pharmaceutical industry promotes a predominantly biological view of psychiatric disorders that emphasizes biological causation and pharmacological treatment to the exclusion of alternative paradigms. This emphasis fails to take into account the significant influence of psychological and social factors in the etiology of many disorders and ignores research that validates the efficacy of nonmedical treatment approaches (Shooter, 2005). Woodlock (2005) argued that it also fails to give adequate attention to patients and their distress, including social isolation, and their role in successful treatment outcomes. Farina, Fisher, Getter, and Fischer’s (1978) study into the consequence of people’s views about the nature of mental disorders found that individuals who accept a biomedical model of illness are less likely to believe that they can affect change around their problems and believe that medication is the optimal treatment.

Surveys have suggested that more than half of health advocacy groups receive money from pharmaceutical companies (Ball, Tisocki, & Herxheimer, 2006). Patients tend to trust these organizations to act in an unbiased manner; however, Ball et al. argued that in some cases patient organizations have become a mouthpiece for the pharmaceutical industry in influencing regulatory authorities. Their study of patient organization websites found that only a third of websites stated how the organization derived its funds, failing to inform its members of potential conflicts of interest.

THE INTERNET

The influence of drug companies via the Internet is a relatively new and little studied area. Numerous websites now provide a huge range of information covering diagnosis, etiology, and treatment and incorporate interactive forums, self-diagnostic tools, online professional advice, and personal stories from

individuals with mental health issues. Individuals use websites to research their own conditions and health care, talk with medical professionals, make decisions surrounding their treatment, and talk to others who may share their condition (Fox, Ward, & O'Rourke, 2005). Powell and Clarke's (2006) study of Internet information seeking in mental health found that the Internet was used to source mental health information by more than 10% of the general population and by more than 20% of those with a history of mental health problems. Fox et al. and Woodlock (2005) highlighted concerns over the reliability and validity of Web-based information and its lack of regulation. Kisley, Ong and Takyar's survey (2003) of the quality of Web-based information on the treatment of schizophrenia and attention-deficit/hyperactivity disorder concluded that the quality of information and the accountability of mental health websites are generally poor. Griffiths and Christensen's (2000) study of Web-based information on the treatment of depression also concluded that the quality of information was poor, despite many sites containing important and potentially useful information. The Health on the Net Foundation has issued a code of conduct for medical and health sites; however, this is only an advisory body, and it cannot enforce minimum standards (Kisley et al., 2003).

Drug company-funded (DCF) websites about schizophrenia have been found to be more likely than non-DCF websites to espouse a biogenetic, rather than a psychosocial, perspective on the causes and treatment of schizophrenia (Read, 2008). The current study focused on posttraumatic stress disorder (PTSD), comparing DCF and non-DCF websites in terms of their portrayal of etiology and recommended treatment.

PTSD is one of the few *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) diagnoses in which the primary etiological factor, exposure to a traumatic event, is identified. Nevertheless, it is conceivable that DCF sites may place greater emphasis on biological etiological factors (e.g., genetic predisposition). There is certainly considerable variation in the treatment of PTSD, allowing websites to emphasize biological rather than psychological treatment approaches or vice versa.

AIMS OF THE CURRENT STUDY

This study aimed to investigate the possible influence of the pharmaceutical industry on Internet websites by testing the following hypotheses:

1. DCF websites will place significantly greater emphasis on medication in the treatment of PTSD compared to non-DCF websites.
2. DCF websites will place significantly greater emphasis on biological and genetic-constitutional explanations of PTSD compared to non-DCF websites.

3. The two measures relating to treatment and etiology will be positively correlated (i.e., websites placing greater emphasis on biogenetic causal factors will place greater emphasis on medication).

METHODS

Website Selection

In June 2007, Google and Yahoo! were searched by entering “posttraumatic stress disorder,” producing nearly 3 million results. The first 60 websites were identified from each search engine. Of these 120 websites, 54 were included for analysis (see Table 1). Website exclusion was due to duplication (websites appearing in both Google and Yahoo! were recorded only once), an exclusive focus on children or adolescents, insufficient content, and content only obtained by links to external websites or several external articles.

Funding Categorization

Websites were classified as DCF if they were drug company sites, displayed drug company advertisements, acknowledged financial support from one or more drug companies, or acknowledged drug companies as partners. Otherwise they were classified as non-DCF.

Website Categorization

Websites were classified into eight categories: government, nongovernmental organization (NGO), professional (organizations and individuals), consumer (websites run by families, carers, and/or supporters of individuals with a mental illness, and individuals with PTSD), media, education (any website connected to an educational institute, including medical colleges, universities, and academic journals), business (including websites that stated they were a company or owned by a company, that did not state they were nonprofit; and sites run by professionals who were promoting their services), and drug company (sites owned by drug companies).

Data Analysis

Comparisons between DCF and non-DCF websites in relation to the two scales used the Mann–Whitney *U* test, as initial data screening suggested that the data may not be suitable for parametric tests. Also, treatments and causes were measured on Likert scales, which does not necessarily generate data amenable to parametric analysis.

TABLE 1 Websites and Treatment Score

| No. | Site | Google Rank | Yahoo! Rank | Category | DCF/ Non-DCF | Treatment Score |
|-----|----------------------------|-------------|-------------|--------------|--------------|-----------------|
| 1 | Wikipedia.org | 1 | 5 | NGO | Non-DCF | 3 |
| 2 | Ncptsd.va.gov | 2 | 33 | Government | Non-DCF | 3 |
| 3 | Nimh.nih.gov | 3 | 16 | Government | Non-DCF | 3 |
| 4 | Medicinenet.com | 5 | 2 | Business | DCF | 3 |
| 5 | Mayoclinic.com | 8 | 55 | NGO | DCF | 3 |
| 6 | Emedicinehealth.com | 9 | 6 | Business | DCF | 3 |
| 7 | Ptsdalliance.org | 10 | 51 | NGO | DCF | 3 |
| 8 | Familydoctor.org | 13 | | Professional | DCF | 5 |
| 9 | Healthyminds.org | 16 | 28 | Professional | Non-DCF | 2 |
| 10 | Rcpsych.ac.uk | 19 | | Education | Non-DCF | 2 |
| 11 | About.com | 20 | | Business | DCF | 3 |
| 12 | Psychcentral.com | 22 | | NGO | DCF | 3 |
| 13 | Heretohelp.org | 23 | | Government | Non-DCF | 2 |
| 14 | Helpguide.org | 24 | | Consumer | Non-DCF | 2 |
| 15 | Campus.houghton.edu | 27 | | Education | Non-DCF | 2 |
| 16 | Ptsd.factsforhealth.org | 30 | 9 | Education | Non-DCF | 3 |
| 17 | Cmha.ca | 31 | | NGO | DCF | 2 |
| 18 | Mind.org.uk | 34 | | NGO | Non-DCF | 2 |
| 19 | Webmd.com | 32 | | Business | DCF | 2 |
| 20 | Nami.org | 33 | | Consumer | DCF | 3 |
| 21 | Ptsdmanual.com | 35 | | Consumer | Non-DCF | 1 |
| 22 | Guidance.nice.org | 36 | | Government | Non-DCF | 2 |
| 23 | Psychguides.com | 37 | | Business | DCF | 3 |
| 24 | Nmha.org | 38 | | NGO | DCF | 2 |
| 25 | Athealth.com | 39 | | NGO | DCF | 3 |
| 26 | Mhsanctuary.com | 40 | | Business | DCF | 2 |
| 27 | Healthynj.org | 41 | | Education | Non-DCF | 3 |
| 28 | Acpmh.unimelb.edu.au | 46 | | Education | Non-DCF | 2 |
| 29 | Bbc.co.uk | 47 | | Media | Non-DCF | 3 |
| 30 | Postgradmed.com | 49 | 14 | Education | DCF | 4 |
| 31 | Pbs.org | 50 | | Media | DCF | 4 |
| 32 | Aafp.org | 55 | | Professional | Non-DCF | 3 |
| 33 | Cancer.gov | 56 | | Government | Non-DCF | 2 |
| 34 | Trauma.pages.com | 59 | | Professional | Non-DCF | 1 |
| 35 | Anxietyaustralia.com.au | 60 | | Professional | Non-DCF | 1 |
| 36 | Psychology.net.org | 53 | 7 | Professional | DCF | 3 |
| 37 | Apa.org | | 3 | Professional | Non-DCF | 1 |
| 38 | Mnwelldir.org | | 8 | NGO | Non-DCF | 1 |
| 39 | Adaa.org | | 11 | NGO | DCF | 3 |
| 40 | Anxiety.psy.ohio-state.edu | | 15 | Education | Non-DCF | 1 |
| 41 | Mentalhealthchannel.net | | 20 | Business | DCF | 3 |
| 42 | Pdrhealth.com | | 23 | Drug company | DCF | 3 |
| 43 | 352express.com | | 24 | Business | Non-DCF | 2 |
| 44 | Vakkur.com | | 25 | Business | Non-DCF | 4 |
| 45 | Guidetopsychology.com | | 26 | Professional | Non-DCF | 2 |
| 46 | Sfbacct.com | | 30 | Business | Non-DCF | 1 |
| 47 | Answers.com | | 31 | Business | DCF | 3 |

(Continued)

TABLE 1 (Continued)

| No. | Site | Google Rank | Yahoo! Rank | Category | DCF/ Non-DCF | Treatment Score |
|-----|----------------------------|-------------|-------------|--------------|--------------|-----------------|
| 48 | Merck.com | | 40 | Drug company | DCF | 2 |
| 49 | Military.com | | 41 | Government | Non-DCF | 3 |
| 50 | Focus.psychiatryonline.org | | 44 | Education | Non-DCF | 3 |
| 51 | Jama.ama-assn.org | | 50 | Education | Non-DCF | 3 |
| 52 | Icisy.org | | 53 | NGO | Non-DCF | 5 |
| 53 | Psych.org | | 56 | Professional | Non-DCF | 3 |
| 54 | 1on1health.com | | 58 | Drug company | DCF | 3 |

Notes: DCF = drug company funded; NGO = nongovernmental organization.

Scale Development

The causes and treatments measures were both Likert scales. They were developed after we read all of the website statements on each of these issues. The Causes scale was a 3-point scale with 1 = *event only*, 2 = *event/biological or event/genetic–constitutional*, and 3 = *event, genetic–constitutional, and biological*. “Event only” was defined as stating that a traumatic event was the primary etiological factor in PTSD, with no mention of biological dysregulation or genetic–constitutional factors. “Biological” causation was met if the website referred to biological dysregulation (e.g., of the autonomic nervous system or the Hypothalamic-Pituitary-Adrenal axis [HPA]), increases in heart rate and blood pressure, and enhanced physiological reactivity to traumatic stimuli. The biological factor was met whether it was presented as a risk factor for PTSD or was included in the general explanation of PTSD. “Genetic–constitutional” included any use of the terms or synonyms of *genetic* and *heredity* or references to preexisting personality or individual differences in resiliency.

The Treatments score was measured on a scale from 1 to 5, where 1 = *psychological treatments were the only stated treatments for PTSD*; 2 = *psychological treatments were given greater emphasis in the treatment of PTSD, but medications were mentioned*; 3 = *equal emphasis was given to medication and therapy*; 4 = *medication was given greater emphasis in the treatment of PTSD, but psychological treatments were mentioned*; 5 = *medication was the only stated treatment for PTSD*. “Greater emphasis” was decided on the basis of the following factors: if the website stated that one type of treatment was more effective than the other, if one treatment was named as the primary or secondary treatment, or if significantly more information or space on the website was given to one type of treatment.

Inter-Rater Reliability

As a control for potential researcher bias (given that the research was not blind to the DCF or non-DCF status of the websites), a random sample of 11

websites (10%) was selected, identifiers removed, and the Treatments scale rated by an independent rater.

Ethics

Ethics permission was not required.

RESULTS

Types of Websites

Business and NGO websites both numbered 11. Professional and educational websites both numbered 9; government, 6; consumer and drug company, 3; and media, 2 (see Table 1).

Drug Company Funding

A total of 23 (42%) websites received drug company funding. The categories of websites most likely to be DCF were business (72.7%) and NGO (63.6%); the least likely to be DCF were government (0%) and professional (22.2%; see Table 2).

Inter-Rater Reliability

Inter-rater reliability for 11 ratings on the Treatments scale was acceptable ($\kappa = .872$, $p < .001$). There was only one discrepancy in the treatment scores, where the independent rater had given a 1 and the researcher a 2. The independent rater's score reflected the website's statement that medications were only used to treat the symptoms of PTSD; however, this had not

TABLE 2 Website Category and Drug Company Funding

| Category | DCF | Non-DCF | Total No. of Websites |
|---------------------------------|--------|---------|--------------------------|
| Government | 0.0% | 100.0% | 6 |
| Nongovernmental Organization | 63.6% | 36.4% | 11 |
| Professional | 22.2% | 77.8% | 9 |
| Consumer | 33.3% | 66.7% | 3 |
| Media | 50.0% | 50.0% | 2 |
| Education | 11.1% | 88.9% | 9 |
| Business | 72.7% | 27.3% | 11 |
| Drug Company | 100.0% | 0.0% | 3 |

Notes: DCF = drug company funded.

been used as a discriminating factor in treatment score, so it was decided to retain a treatment score of 2 for this website.

Treatment Scores

On the Treatments scale, DCF websites ($M = 3.00$, $SD = 0.74$) placed greater emphasis on medication compared to non-DCF websites ($M = 2.26$, $SD = 0.93$), $U = 212$, $p = .007$ (see Table 3).

More detailed examination of the results revealed that 78% of the 18 websites that gave more emphasis to therapy (score = 1 or 2) were non-DCF, $\chi^2(1) = 7.125$, $p = .008$. All seven websites that recommended therapy only (score = 1) were non-DCF. Conversely, 80% of the five websites that placed more emphasis on medication (score = 4 or 5) were DCF sites (see Table 4).

Causes Scale

On the Causes scale, DCF websites ($M = 1.83$, $SD = 0.78$) showed no significant difference in emphasis compared to non-DCF websites ($M = 1.74$, $SD = 0.77$), $U = 334.5$, $p = .679$ (see Table 3).

Further analysis of the data revealed no significant differences between DCF and non-DCF websites and the types of causes included in their explanations of PTSD. All websites listed event as a causal factor in PTSD. Of all DCF websites, 34% included genetic–constitutional causes and 47% included

TABLE 3 Comparison of DCF and Non-DCF Mean Rank on Causes and Treatments Variables

| Variable | DCF | Non-DCF |
|-------------------|-------|---------|
| Causes Scale | 28.46 | 26.79 |
| Treatments Scale* | 33.78 | 22.84 |

Notes: DCF = drug company funded.

* $p < .01$

TABLE 4 Treatment Emphasis of DCF and Non-DCF Websites

| Treatment Emphasis | Treatment Score | DCF | Non-DCF | Total No. of Websites |
|--|-----------------|--------|---------|-----------------------|
| Therapy Only | 1 | 0.0% | 100.0% | 7 |
| Therapy Emphasized | 2 | 31.3% | 68.8% | 16 |
| Equal Emphasis on Therapy and Medication | 3 | 53.8% | 46.2% | 26 |
| Medication Emphasized | 4 | 100.0% | 0.0% | 3 |
| Medication Only | 5 | 50.0% | 50.0% | 2 |

Notes: DCF = drug company funded.

biological dysregulation in their explanations of PTSD compared to non-DCF websites, of which 25% included genetic–constitutional causes and 54% included biological dysregulation.

Treatment Score and Cause Score

A Spearman's rank coefficient was used to analyze whether there was any relationship between Treatments scale scores and Causes scale scores. Although it was in the expected direction, it did not reach statistical significance, $r(52) = .249, p = .069$.

DISCUSSION

Drug Company Funding of PTSD Websites

Overall, the findings of this study show that PTSD websites received considerable funding from drug companies, with almost half (42%) declaring or showing evidence of drug company funding. Read's (2008) study of schizophrenia websites reported that 58% were DCF. In addition to drug company websites, business and NGO sites were the most likely to be DCF. This is consistent with Read's findings that business and NGO websites received a high degree of funding relative to other categories.

Treatments

A significant difference was observed between DCF and non-DCF websites on the Treatments scale, with DCF websites placing greater emphasis on medication compared to non-DCF websites. This finding is consistent with previous findings by Read (2008) that DCF websites about schizophrenia were more likely than non-DCF websites to emphasize medication rather than psychosocial treatments. It is also consistent with the criticism that drug companies overemphasize pharmacological treatments to the exclusion of other therapies. Given that the primary function of the pharmaceutical industry is to maximize profits, we would expect it to emphasize pharmacological treatment of psychiatric disorders, as this study has found.

Etiological Explanations

DCF websites did not place significantly greater emphasis on biogenetic explanations of PTSD compared to non-DCF websites ($Z = .414, p = .679$). DCF websites were no more likely than non-DCF sites to include genetic–constitutional and biological factors in their causal explanations of PTSD. The lack of a significant difference in causal explanation may reflect the

unique nature of PTSD in that the primary etiological factor is included in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) diagnostic criteria. All websites emphasized the event as the primary causative factor in PTSD. In both the previously mentioned schizophrenia study (Read, 2008) and a recent study of depression websites (de Wattignar & Read, in press) DCF websites emphasized bio-genetic causes significantly more than psycho-social causes.

Clinical Implications

By giving equal or greater emphasis to medication in the treatment of PTSD, DCF websites risk overemphasizing the effectiveness of medication while minimizing or ignoring alternative and valid treatment approaches. Individuals who refer to these websites are receiving information that is one-sided. Although medication may alleviate some symptoms, it will not address issues such as social isolation, distorted thinking, and the processing of trauma. Medication also fails to encourage change at a social level by reducing the incidence of preventable trauma, including child abuse, rape, and violence. Individuals with current mental health issues are likely to be under considerable distress and therefore vulnerable to the marketing strategies of drug companies that promise a quick fix. Practitioners under pressure and with limited resources are also at risk for prescribing medication over long-term therapeutic intervention, seeing medication as a panacea that can reduce risk in the short term.

These findings also support previous research highlighting the unreliability and poor quality of Web-based information and the need for regulations to safeguard the consumer against unreliable and potentially dangerous medical advice. It is noted that website information oversells the benefits of medication while minimizing the side effects (Davis, Cross, & Crowley, 2007). As Shooter (2005) stated, "Patient power is only as good as the information given and that information is often poor" (p. 81). All mental health services should have written information about causes and treatments available for clients that is evidence based and free from drug company funding and influence.

Limitations of the Study

The differentiation of DCF from non-DCF websites was imprecise. Some owners of websites that did not satisfy requirements to be categorized as DCF do receive drug company funding for other activities. For example, the American Psychiatric Association (<http://www.psych.org>) received more than \$13 million from the pharmaceutical industry in 2000 (Antonuccio et al., 2003). Also, the educational journal website jama.ama-assn.org clearly receives drug company funding as observed by the drug company advertising

in the print journal; however, online the advertising was not visible, so the site was classified as non-DCF. Furthermore, it is possible that some websites receive sponsorship despite the lack of visible evidence of drug company funding. To improve the validity of outcome data, subsequent studies may need to contact website owners to clarify if they receive drug company funding for their websites. Furthermore, the scoring process was not blind to the type of website; however, the interrater reliability suggests that any researcher bias, if present, was minimal.

Given the nature of the data, the study does not allow for any firm conclusions about whether the findings are causal in nature, or about the direction of possible causal relationships. Although DCF websites placed more emphasis on medication compared to non-DCF sites, it is unclear how this influence occurs. As Read (2008) postulated, it is possible that drug company funding does not directly influence the content of websites but that, instead, drug companies tend to fund organizations whose websites are already espousing a biogenetic perspective. Both mechanisms of influence may be occurring.

Future Research

This study corroborates previous findings suggesting that DCF websites give more emphasis to medication rather than psychosocial interventions in the treatment of mental illness. It also highlights the often poor quality of Web-based information in general. Future research is needed regarding the frequency with which mental health professionals, consumers, and the community access Web-based information on mental health issues, and the level of importance they give to this information. Questions could include the following:

- What information are people seeking through the Internet?
- How much do they trust website information?
- Do they act upon this information (e.g., in making treatment decisions)?
- What other resources do people access when seeking information on mental health issues?

Future research into the influence of drug companies could examine the degree to which mental health consumers are influenced by drug companies via the Internet, through patient organizations, and through direct-to-consumer advertising.

A significant amount of research has been conducted into the role of the pharmaceutical industry in medicine and psychiatry (Breggin, 2008; Mosher et al., 2004). However, as yet, little emphasis has been placed on influence within psychology and psychological services. It is important to

note that it is not only psychiatrists who are becoming targets for drug company funding. The American Psychological Association (2005) task force set up to investigate pharmaceutical industry interest in Association funding activities found that funding of organizational activities already exists on a limited scale. With psychologists in the United States pursuing the right to prescription privileges, this influence will only increase, as will the potential negative consequences (Antonuccio et al., 2003). Research investigating the contact that psychologists and other nonmedical professionals currently have with drug companies, both directly and indirectly, and their perception of this influence in terms of their practice, may also be beneficial. Several researchers have highlighted the fact that drug companies increase their markets by extending the boundaries of treatable illness. For example, Moynihan and Cassels (2005) suggested that what was once considered shyness has been redefined as social anxiety disorder, and premenstrual tension has now become premenstrual dysphoric disorder. Woodlock's (2005) study examining Internet information on depression found that the symptoms described were often vague and general. An analysis of websites focusing on the definition and symptoms characterizing specific disorders would provide empirical support for the claim that DCF websites promote a definition of disease that is conducive to increasing their market and therefore selling more products.

Future research may also investigate the strategies by which websites gain prominence in search engines. Investigation into the regulation of the content of mental health websites and recommendations around transparency of ownership and sponsorship of websites is also important. A study examining the content of depression websites concluded as follows: "Sites owned by organisations and those involving drug companies were less likely than their counterparts to indicate the author's identity, affiliation, and credentials" (Griffiths & Christensen, 2000, p. 1511).

Conclusion

Drug company influence within the area of mental health is prevalent and now extends to the Internet. This influence is not always transparent. This study suggests that drug company sponsorship of websites leads to a greater emphasis on pharmacology in the treatment of PTSD. This overemphasis on medication by DCF websites has significant clinical implications. It may well lead to clients failing to get the treatment they need. This study also highlights the fact that often the quality of Web-based information on mental health issues is poor. Given the financial muscle of the pharmaceutical industry and the increasing influence of the Internet, it is important that researchers and clinicians continue to emphasize the dangers of the promotion of a quick chemical fix (Moncrieff, 2008).

REFERENCE

- American Psychological Association. (2005). *APA task force on external funding: Final report*. Retrieved September 17, 2007, from <http://www.apa.org/about/taskforce>
- Antonuccio, D., Danton, W., & McClanahan, T. (2003). Psychology in the prescription era: Building a firewall between marketing and science. *American Psychologist*, *58*, 1028–1043.
- Ball, D., Tisocki, K., & Herxheimer, A. (2006). Advertising and disclosure of funding on patient organisation websites: A cross-sectional survey. *BMC Public Health*, *6*(201), 201–212.
- Breggin, P. (2008). *Medication madness: A psychiatrist exposes the dangers of mood-altering drugs*. New York: St. Martin's Press.
- Davis, J., Cross, E., & Crowley, J. (2007). Pharmaceutical websites and the communication of risk information. *Journal of Health Communication*, *12*(1), 29–39.
- de Wattignar, S., & Read, J. (in press). The pharmaceutical industry and the internet: Are drug company funded depression websites biased? *Journal of Mental Health*.
- Doran, E., Kerridge, I., McNeill, P., & Henry, D. (2006). Empirical uncertainty and moral contest: A qualitative analysis of the relationship between medical specialists and the pharmaceutical industry in Australia. *Social Science & Medicine*, *62*, 1510–1519.
- Farina, A., Fisher, J., Getter, H., & Fischer, E. (1978). Some consequences of changing people's views regarding the nature of mental illness. *Journal of Abnormal Psychology*, *87*, 272–279.
- Fava, G. (2004). Conflict of interest in psychopharmacology: Can Dr. Jekyll still control Mr. Hyde? *Psychotherapy and Psychosomatics*, *73*(1), 1–4.
- Fox, N., Ward, K., & O'Rourke, A. (2005). The "expert patient": Empowerment or medical dominance? The case of weight loss, pharmaceutical drugs and the Internet. *Social Science & Medicine*, *60*, 1299–1309.
- Griffiths, K., & Christensen, H. (2000). Quality of web based information on treatment of depression: Cross sectional survey. *British Medical Journal*, *321*, 1511–1515.
- Healy, D., & Thase, M. (2003). Is academic psychiatry for sale? *British Journal of Psychiatry*, *182*, 388–390.
- Kempner, J. (2006). Gendering the migraine market: Do representations of illness matter? *Social Science & Medicine*, *63*, 1986–1987.
- Kisely, S., Ong, G., & Takyar, A. A. (2003). Survey of the quality of web based information on the treatment of schizophrenia and Attention Deficit Hyperactivity Disorder. *Australian and New Zealand Journal of Psychiatry*, *37*, 85–91.
- Mather, C. (2005). The pipeline and the porcupine: Alternate metaphors of the physician-industry relationship. *Social Science & Medicine*, *60*, 1323–1334.
- Mintzes, B. (2002). Direct to consumer advertising is medicalising normal human experience. *British Medical Journal*, *324*, 908–909.
- Moncrieff, J. (2008). *The myth of the chemical cure: A critique of psychiatric drug treatment*. Basingstoke, UK: Palgrave Macmillan.
- Moncrieff, J. (2003). *Is psychiatry for sale? An examination of the influence of the pharmaceutical industry on academic and practical psychiatry* (Maudsley Discussion Paper). London: Institute of Psychiatry.

- Moncrieff, J., & Thomas, P. (2002). The pharmaceutical industry and disease mongering: Psychiatry should not accept so much commercial sponsorship. *British Medical Journal*, *325*, 218.
- Mosher, L., Gosden, R., & Beder, S. (2004). Drug companies and schizophrenia: Unbridled capitalism meets madness. In J. Read, L. Mosher, & R. Bentall (Eds.), *Models of madness* (pp. 116–130). London: Routledge.
- Moynihan, R., & Cassels, A. (2005). *Selling sickness: How the world's biggest pharmaceutical companies are turning us all into patients*. New York: Nation Books.
- Powell, J., & Clarke, A. (2006). Internet information-seeking in mental health: Population survey. *British Journal of Psychiatry*, *189*, 273–277.
- Read, J. (2008). Schizophrenia, drug companies and the Internet. *Social Science & Medicine*, *66*, 99–109.
- Sharfstein, S. (2005). Big pharma and American psychiatry: The good, the bad and the ugly. *Psychiatric News*, *40*(16), 3–4.
- Shooter, M. (2005). Dancing with the devil? A personal view of psychiatry's relationships with the pharmaceutical industry. *Psychiatric Bulletin*, *29*, 81–83.
- Woodlock, D. (2005). Virtual pushers: Antidepressant Internet marketing and women. *Women's Studies International Forum*, *28*(4), 304–314.
- Zuger, A. (2007, April 24). Medicine and the drug industry, a morality tale. *New York Times*. Retrieved May 20, 2007, from http://www.nytimes.com/2007/04/24/health/24book.html?_r=1&oref=