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Do Antidepressant Advertisements Educate Consumers and Promote Communication Between Patients with Depression and Their Physicians?

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Abstract

Objective—To examine how online depression support group members respond to direct-to-consumer (DTC) antidepressant advertising.

Methods—Survey of 148 depression forum members, administered via an online questionnaire.

Results—Chronicity was high, as 79.1% had received a diagnosis of depression 3 or more years earlier. Respondents reported seeing advertisements for an average of 4.3 of 7 brands investigated. A majority rated the information quality of these advertisements as “poor” or “fair.” Attitudes toward antidepressant advertisements were neutral (mean: 2.96 on a 5-point scale). More than half (52.4%) visited official websites provided in these advertisements, 39.9% had talked with a doctor after seeing an advertisement, 20.3% made an advertisement-induced prescription request, and 25.7% said these advertisements reminded them to take their antidepressants. Amount of attention given to these advertisements correlated positively with belief in the brain chemical imbalance causal model, but belief in this model did not predict prescription requests.

Conclusion—Awareness of DTC antidepressant advertisements is high among individuals with depression, but so is skepticism.

Practice Implications—Among members of an on-line support group, these advertisements encourage patient-doctor dialogue, prescription requests, and adherence, but might also reduce the acceptability of psychotherapy and encourage doctor switching in a small number of patients.

Keywords

direct-to-consumer; advertising; advertisements; marketing; promotion; prescription; drugs; depression; antidepressants; chemical imbalance; patient requests

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Conflict of Interest The remaining authors have no conflicts of interests to disclose.

1. Introduction

The pharmaceutical industry spent \$4.3 billion on consumer-targeted prescription drug advertising in 2008 [1]. Proponents of such advertising believe that it educates the public about treatment options and encourages consumers to talk to their doctors about their health concerns [2]. Critics have argued that the true purpose of DTC advertising is to prompt patients to make brand-specific requests for prescription drugs, which leads to unnecessary prescribing and the potential for conflict in the doctor-patient relationship [3–4]. Despite the intensity of the debate, and associated efforts to curtail DTC advertising via legislation at the state and federal levels [5], little research has examined the specific issue of how the attitudes, beliefs and behaviors of individuals with depression are shaped by DTC antidepressant advertisements. This is surprising, for antidepressants are among the most prescribed drugs in the United States [6]. U.S. sales for selective serotonin-reuptake inhibitors (SSRIs) and selective norepinephrine-receptive inhibitors (SNRIs) were \$12.5 billion in 2005, and approximately \$122 million was devoted to direct-to-consumer (DTC) antidepressant advertising in that year [7].

The present study begins to address this gap in the literature using data from a survey of Internet peer-to-peer depression support group members. Such groups remain understudied [8] despite the fact that a majority of Americans regularly use the Internet to investigate health matters [9], and nearly 3 in 10 Internet users participate in online support groups organized around issues of health and well being [10]. On Yahoo! Groups alone, there were 3782 groups in the “mental health disorders” category in September 2009. Since the use health support groups is increasing, and because doctors deal with such patients on a daily basis, peer-to-peer support groups represent a vanguard population in need of study.

We first explored the extent to which highly motivated members of a depression support group are aware of antidepressant advertisements. Public awareness of these advertisements is generally high [11–14], but awareness of antidepressant advertisements among individuals with depression is understudied. Other than a survey which found that 85% of respondents with depression had seen Prozac advertisements, we know little about how closely individuals with depression attend to these advertisements [15].

Second, we assessed perceptions of the educational value of antidepressant advertisements among individuals with a history of depression. Many observers have questioned the quality of information in DTC advertising generally [12,16–18] and antidepressant advertisements specifically [19]. Judgments of an advertisement's believability mediate people's responses to it [20], including their willingness to talk with their physicians after seeing such an advertisement [11]. Ours is the first investigation to assess the views of people with depression about the educational merit of antidepressant advertisements.

Third, we examined attitudes toward these advertisements among individuals with depression. Consumers have usually reported neutral to positive attitudes toward DTC advertising [13, 21–25]. Attitudes are important because people who are positively predisposed toward these advertisements are more willing to seek information about advertised medications, discuss these drugs with their physicians, and request prescriptions [14,24–30].

Fourth, we assessed how individuals with depression have responded to antidepressant advertisements. Surveys have found that consumers request prescriptions after seeing DTC advertising [12,31], including requests for antidepressants [32–33]. Donahue and colleagues found that the initiation of antidepressant drug therapy was 32% higher when antidepressant advertising was most extensive [34]. Unfortunately, these studies do not examine the varied

ways in which these advertisements shape patients' information-seeking activities in the medical encounter and beyond.

Fifth, we investigated if antidepressant advertisements influence treatment preferences by framing depression as an outcome of a brain chemical imbalance, a prominent view in such advertisements [35–36]. Our focus is not on the validity of the chemical imbalance explanation, which has been contested [37]. Rather, we ask if exposure to these advertisements is associated with acceptance of the chemical imbalance account. People who subscribe to this explanation may feel that pharmacological treatment is necessary [38–39], discouraging consideration of evidence-based psychotherapies [19,35]. Antidepressant advertisements can affect the public's beliefs about depression [40–41], but no study has examined how awareness of these advertisements is related to acceptance of the chemical imbalance model.

2. Methods

2.1. Sample and recruitment

An anonymous online survey was carried out in fall of 2008, based on a convenience sample of 148 members of an internet depression forum headquartered in the United States. Respondents were recruited with a forum post that introduced the survey and provided a link to the questionnaire. Individuals 18 years of age or older with a history of depression were eligible to participate. This research was approved by the IRB at the authors' university.

2.2. Measures

To measure *exposure*, respondents were asked if they had seen on television or read in print an advertisement for each of seven heavily marketed brands of antidepressant medications. These included six frequently advertised brands for major depressive disorder: Cymbalta (duloxetine hydrochloride), Effexor XR (venlafaxine hydrochloride), Lexapro (escitalopram oxalate), Paxil (paroxetine hydrochloride), Wellbutrin XL (bupropion hydrochloride), and Zoloft (sertraline hydrochloride). We also asked about Abilify (aripiprazole), which has been promoted extensively as an adjunctive treatment for major depressive disorder. An Exposure Index was created by counting across the seven brands the number for which the respondent recalled having seen an advertisement. To check reporting veracity, we also asked about three older brands of antidepressants that are not currently marketed to consumers.

Attention was assessed by asking respondents to rate how closely they pay attention to antidepressant advertisements on two four-point scales, one for magazine advertisements and the second for television advertisements. Responses on these two items were averaged to create a composite Attention score.

Attitudes were assessed with seven items that asked about the extent to which antidepressant advertisements were liked, had no value to people with depression, provide people with depression a better understanding of their condition, should be banned, help patients to take better care of themselves, can be trusted, and are educational. Responses were made on five-point Likert scales. A composite score was computed by averaging across these items (1=negative attitude/5=positive attitude).

The *Perceived Information Quality* of antidepressant advertisements was measured by having respondents rate on four scales the quality of information these advertisements provide about depression's causes and symptoms and the advertised medications' effectiveness and risks/side effects. The response options were poor, fair, good, and excellent. A composite score was computed by averaging across these items.

Past Influence was assessed by giving respondents a checklist of fourteen potential actions one could take in response to antidepressant advertising and instructing them to indicate those things they had done as a result of such an advertisement. These behaviors are described below in our presentation of results. A measure of Past Influence was created by counting across the fourteen past behavior items the number of “yes” responses.

Respondents' *Belief in the Chemical Imbalance Causal Model* was measured with five Likert items taken from France and colleagues (e.g., “Depression is primarily caused by an imbalance of chemicals in the brain”) [35]. These items were averaged to create a composite score with a range of 1–5 (5=very strong agreement with the model).

Health-Related and Demographic Measures—The presence of depressed mood and anhedonia at the time of the survey was assessed with the PHQ-2 [42]. Respondents were also asked questions about their current sources of depression care. Acceptability of treatment with antidepressants and psychotherapy (“counseling” in the questionnaire) were assessed by instructing respondents to suppose that they had a recurrence of depression and then having them rate their acceptance of treatment with antidepressants and psychotherapy on two 7-point scales (–3 = Unacceptable / +3 = Acceptable). The survey ended with standard demographic questions.

2.3. Statistical analyses

Analysis was carried out using Stata, Version 10.1 (Stata Corp., College Station, TX). Results are based on basic descriptive statistics, correlations, and inferential statistical procedures. For brevity, only significant findings ($p < .05$) are highlighted.

3. Results

3.1. Sample characteristics

The sample, profiled in Table 1, was composed primarily of white women, with greater diversity evident on income, education, and relational/marital status. Depression chronicity was high, as 79.1% had been living with a diagnosis of depression for 3 years or longer. The mean number of years since diagnosis was 12.9 (sd=10.4). Very few were free of depression symptoms at the time of the survey and most were under the care of a primary care physician and/or psychiatrist. Nearly two-thirds were taking antidepressant medications when surveyed and approximately half were receiving psychotherapy.

3.2. Reliabilities

Scale reliabilities were as follows: Exposure (.66), Awareness (.71), Perceived Information Quality (.75), Attitudes toward Antidepressant Advertisements (.89), Past Influence Index (.82), and PHQ-2 (.85) [43].

3.3. Exposure and attention

Table 2 reports levels of exposure to the advertisements. On average, respondents reported seeing advertisements for 4.3 of 7 drugs (sd = 1.88). For the three “veracity checks” exposure was $\leq 4.1\%$ ($n < 6$), indicating honest reporting. Exposure was associated with higher acceptance of treatment with antidepressants ($r = .21$, $p = .009$), but unrelated to acceptability of psychotherapy ($r = .01$, $p = .92$).

The correlation between Attention and Exposure was just .22 ($p = .006$), indicating that exposure is not a sufficient condition for attention. Despite high exposure, only 36.5% ($n = 54$) indicated that they paid “close and careful attention” to antidepressant advertisements on television and/or in print. Respondents under the care of a psychiatrist had significantly higher Attention

scores (mean: 3.12, $sd=0.64$) than respondents not being treated by a psychiatrist (mean: 2.86, $sd=0.73$) ($p=.025$). Attention was significantly correlated with the acceptability of treatment with antidepressants ($r=.23$, $p=.006$) but not psychotherapy ($r=-.06$, $p=.46$). Respondents taking antidepressants at the time of the survey reported higher Attention (mean: 3.06, $sd=0.63$) than other respondents (mean: 2.85, $sd=0.81$) ($p=.045$).

3.4. Perceived educational value

Respondents were generally unimpressed with the quality of the information provided in antidepressant advertisements (Table 3). For all judgments a majority of respondents rated the information provided as poor or fair. The mean on the Perceived Information Quality measure was 2.03 on a scale of 1–4 ($sd=0.66$), which corresponds to an evaluation of “fair.” Individuals who perceived the quality of antidepressant advertisements to be higher were more accepting of treatment with antidepressants ($r=.25$, $p=.003$). Perceived Information Quality was significantly associated with Attention ($r=.48$, $p=.001$), but not Exposure ($r=.06$, $p=.49$). One group comparison was significant on this measure; women were more positive (mean: 2.10, $sd=0.64$) about the quality of information provided than men (mean: 1.72, $sd=0.67$) ($p=.01$).

3.5. Attitudes toward antidepressant advertisements

On average, respondents were neutral about DTC antidepressant advertising (mean=2.96, $sd=0.91$). Approximately 16.2% ($n=24$) had an attitude score of ≥ 4.0 , which represents “agreement” or “strong agreement” with such marketing, and 15.5% ($n=23$) had an attitude score of ≤ 2.0 , reflecting “disagreement” or “strong disagreement.” Holding a more positive attitude toward this kind of advertising was associated with treatment acceptance ratings for antidepressants ($r=.36$, $p=.001$) but not psychotherapy ($r=.02$, $p=.78$). Respondents who held more positive attitudes were more attentive to these messages ($r=.53$, $p=.001$). The attitude and exposure measures were not significantly related, however ($r=.07$, $p=.40$). Respondents with positive attitudes toward antidepressant advertisements tended to evaluate the quality of information within more positively ($r=.48$, $p=.001$). A significant difference in attitudes was observed for one group comparison; women were significantly more positive about these advertisements (mean: 3.03, $sd=0.88$) than men (mean: 2.58, $sd=0.95$) ($p=.025$).

3.6. Past influence

Table 4 reports results for the fourteen potential responses to antidepressant advertising. A majority of respondents reported having carefully watched an antidepressant advertisement on television or read one in print. Respondents were very likely to seek additional information by going to a website provided in the advertisement, but seldom called a toll free patient support number. These advertisements prompted discussions with physicians. Respondents often reported asking their doctor about a specific advertised brand or antidepressants in general, but seldom asked about depression. When responses to these three discussion-related questions are combined, 39.9% ($n=59$, data not shown in tabular form) of respondents acknowledged initiating some form of conversation with their doctor due to an advertisement. Only one in twelve respondents scheduled a new appointment because of an advertisement. These advertisements seldom led to discussions with loved ones about depression. Antidepressant advertisements occasionally led a person to request either a prescription or a change in prescriptions. After combining responses to the two request items, we find that 20.3% ($n=30$) of respondents reported making a request for a new and/or different antidepressant due to an advertisement. These advertisements helped about one-fourth of respondents to remember to take their medications. Rarely did respondents report showing up for their visits with a clipped printed advertisement in hand.

Two significant group differences were observed on the Past Influence measure. Women reported significantly more actions in response to advertisements (mean: 3.81, $sd=3.04$) than

men (2.17, sd=1.93) ($p=.012$) and respondents under the care of a psychiatrist had higher Past Influence scores (mean: 4.06, sd=3.05) than respondents not under such care (mean: 3.06, sd=2.77) ($p=.04$).

We also examined the influence of antidepressant advertisements on requests by comparing those who reported making a prescription request (20.3%, $n=30$) to those who made no such request (79.7%, $n=118$). The groups had identical exposure scores, but requesters paid closer attention to these advertisements (mean: 3.40, sd=0.62) than nonrequesters (mean: 2.88, sd=0.68) ($p=.001$). Requesters were also more positive in their attitudes toward antidepressant advertising (mean: 3.58, sd=0.93) than nonrequesters (mean: 2.80, sd=0.83) ($p=.001$) and rated the information in these ads as higher quality (mean: 2.34, sd=0.74) than nonrequesters (mean: 1.96, sd=0.62) ($p=.005$). No differences were found between requesters and nonrequesters on the demographic and health measures.

3.7. The chemical imbalance explanation of depression

Attention to antidepressant ads ($r=.23$, $p=.002$) but not exposure ($r=-.01$, $p=.94$) was related to belief in the chemical imbalance causal model. Belief in this model correlated positively with ratings of the acceptability of antidepressant treatment ($r=.19$, $p=.02$) and inversely with the acceptability of counseling ($r=-.18$, $p=.03$). However, respondents who had made an advertisement-induced request of a prescription did not hold stronger beliefs in the chemical imbalance account (mean=2.80, sd=0.70) than those who did make such a request (mean=2.81, sd=0.73) ($p=.93$).

4. Discussion and conclusion

4.1. Discussion

This study tells a story about a unique community of consumers and patients: individuals living with chronic depression who were active members of an on-line support group. This is the first survey to examine how such individuals feel about and respond to consumer-targeted antidepressant advertising. These respondents are further distinguished by their willingness to open their lives to others, as evidenced by their involvement in a public support forum. Results support several conclusions.

First, DTC promotion of antidepressants has increased awareness of antidepressants among individuals with depression. However, although exposure was high, only one-third of respondents indicated that they were very attentive to these advertisements. Generally, attention was a much stronger predictor than exposure of attitudes, beliefs and action. Presumably, exposure is shaped by patterns of media use, whereas attention reflects interests in antidepressants and depression.

Second, individuals with depression are ambivalent about antidepressant advertising. They typically gave a low evaluation of the quality of information provided in such messages and held neutral attitudes. Not surprising, individuals who evaluated more positively the information in these advertisements were more inclined to have acted upon them. This finding suggests that the pharmaceutical industry could increase the effectiveness of its advertising by being more educational and less promotional [17].

Third, DTCA antidepressant advertisements have some positive influence on the behavior of individuals with depression. The most prominent effect is to promote discussions with physicians, which was reported by nearly forty percent of respondents. Such conversations allow for the sharing of information and may improve physicians' depression history taking and suicide screening [44]. These advertisements were more likely to lead patients to initiate discussions about medications than depression per se. This finding may reflect the nature of

our sample, which consisted primarily of individuals with chronic depression who have probably acquired a good understanding of their condition. These advertisements also led to requests for new prescriptions or a change in medications in 20% of respondents. Survey length limitations prevented us from exploring the outcomes of such requests, but we can note that switching doctors as a result of request nonfulfillment was reported by fewer than 1 in 20 respondents. Finally, these advertisements served as reminders to take one's medication for one-quarter of respondents.

Fourth, little support could be found for the argument that advertising encourages demand for antidepressants by attributing depression to a brain chemical imbalance. Individuals who paid the closest attention to these advertisements were indeed more likely to subscribe to this explanation of depression. Belief in the chemical imbalance account was significantly but weakly associated with higher acceptance ratings for antidepressants and lower ratings for counseling. However, endorsement of the chemical imbalance model was not associated with advertisement-induced prescription requests. Future investigations should explore the full range of potential pathways to influence, which may include symptom recognition, role-modeling of care-seeking behavior, "medicalization" of depression in ways that go beyond attributions of cause, and stigma reduction.

Fifth, more than half of these respondents had visited an official antidepressant drug website after seeing an antidepressant advertisement, which underscores the need to investigate promotional messages delivered through both traditional media and the internet [45]. Respondents were ten times more likely to have visited a website for more information than to have called a patient education toll free number. A recent report confirms that the internet has gained prominence in consumer-targeted drug promotion [46].

Finally, it appears that antidepressant advertisements may impact men and women differently. Although our sample included few men, three significant gender differences emerged. Women were more positive about antidepressants advertising, rated the information in these advertisements of higher quality, and were more likely to have acted upon them. Perhaps antidepressant advertisements are simply more relevant and compelling to women because they typically depict depression as a "woman's condition" [39].

This study has limitations. First, these data came from a small convenience sample not representative of the population of adults living with depression. Rather, the sample consists of highly motivated, internet savvy consumers, most with chronic or recurrent depression. Second, the cross-sectional survey design makes causal explication challenging. Third, although respondents ascribed specific behaviors to DTC advertisements, the accuracy of their causal attributions cannot be assessed.

4.2. Conclusion

Individuals with depression feel ambivalent about DTC advertisements for antidepressants and are doubtful about the quality of information provided. Nevertheless, they notice these ads and report being influenced by them.

4.3. Practice implications

Direct-to-consumer antidepressant advertisements encourage discussions between patients and physicians, prompt requests for drug therapy, influence perceptions of the etiology of depression, and possibly increase adherence. However, these findings hint at the possibility that these ads lower the acceptance of psychotherapy and encourage doctor shopping in a small subset of patients. When encountering a patient who is hesitant to consider the full range of treatment options, physicians should explore the basis of such resistance. Where DTC

advertising is responsible, the patient might be reminded that while such ads often contain important educational content, their primary purpose is to sell drugs.

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Table 1

Sample characteristics.

Respondent Characteristic	N	%
DEMOGRAPHICS		
Female	124	83.8
Age		
18–29	26	17.6
30–39	37	25.0
40–49	39	26.4
50–59	38	25.7
≥60	8	5.4
White Race	140	94.6
Culturally or Ethnically Hispanic	8	5.4
Education		
H.S. or Less	30	20.3
Some College (No Degree)	55	37.2
Associate Degree	22	14.9
Bachelor Degree	33	22.3
Graduate Degree	8	5.4
Household Income		
Under \$20,000	40	27.0
\$20,001 – \$40,000	30	20.3
\$40,001 – \$60,000	26	17.6
\$60,001 – \$80,000	14	9.5
\$80,001 – \$100,000	16	10.8
>\$100,000	10	6.8
Declined To Answer	12	8.1
Relational Status		
Married	59	39.9
Not Married But Partnered	21	14.2
Separated or Divorced	38	25.7
Widow/Widower	7	4.7
Never Married	23	15.5
HEALTH SITUATION		
PHQ-2 Score		
0	12	8.1
1	11	7.4
2	36	24.3
3	17	11.5
4	20	13.5
5	13	8.8
6	39	26.4
Years Since Initial Diagnosis		

Respondent Characteristic	N	%
<1 Year	5	3.4
1-2 Years	20	13.5
3-5 Years	13	8.8
6-10 Years	32	21.6
11-15 Years	27	18.2
16-20 Years	17	11.5
>20 Years	28	18.9
Unsure/No Response	6	4.1
Treating Provider		
Not Under Physician's Care At This Time	34	23.0
Under Care Of PCP	43	29.1
Under Care Of Psychiatrist	43	29.1
Under Care of PCP and Psychiatrist	28	18.9
Currently Taking Antidepressant Medication	98	66.2
Currently Receiving Counseling for Depression	78	52.7
Covered By a Health Insurance Plan	103	69.6

Total Sample Size, N=148.

Table 2

Percentage and number of respondents reporting exposure to advertisements for 10 antidepressant drugs, sorted by frequency of reporting.

Brand	Exposure Reported	
	N	%
<i>Brands Promoted Directly to Consumers</i>		
Cymbalta (duloxetine hydrochloride)	127	85.8
Zoloft (sertraline hydrochloride)	105	70.9
Abilify (aripiprazole)	95	64.2
Wellbutrin XL (bupropion hydrochloride)	95	64.2
Paxil (paroxetine hydrochloride)	83	56.1
Effexor XR (venlafaxine hydrochloride)	76	51.4
Lexapro (escitalopram oxalate)	62	41.9
<i>Older Antidepressants Not Currently Promoted To Consumers (Veracity Check)</i>		
Desyrel (trazodone hydrochloride)	6	4.1
Pamelor (nortriptyline)	6	4.1
Sinequan (doxepin hydrochloride)	4	2.7

Total Sample Size, N=148.

Table 3

Evaluations by respondents of the quality of information provided in antidepressant advertisements.

Topic	Poor	Fair	Good	Excellent	No Opinion
Causes Of Depression	54.7% (n=81)	24.3% (n=36)	12.8% (n=19)	2.7% (n=4)	5.4% (n=8)
Symptoms Of Depression	10.1% (n=15)	40.5% (n=60)	31.8% (n=47)	14.9% (n=22)	2.7% (n=4)
Effectiveness Of Medication	32.4% (n=48)	42.6% (n=63)	14.2% (n=21)	2.7% (n=4)	8.1% (n=12)
Medication Risks/Side Effects	31.1% (n=46)	35.8% (n=53)	17.6% (n=26)	11.5% (n=17)	4.1% (n=6)

Total Sample Size, N=148.

Table 4

Reports of past behaviors attributed to direct-to-consumer advertising of antidepressants, sorted by frequency of occurrence.

Behavior	Affirmative Response	
	N	%
Have you ever carefully watched a television ad for an antidepressant from start to finish?	113	76.4%
Have you ever gone to a website provided in an antidepressant ad to get more information about the drug?	79	53.4%
Have you ever carefully read an antidepressant ad in a magazine or newspaper from beginning to end?	77	52.0%
Have you ever asked your doctor about a specific brand of antidepressant because of an ad for that brand?	47	31.8%
Have you ever asked your doctor about antidepressant medications in general because of an antidepressant drug advertisement?	41	27.7%
Has an advertisement for an antidepressant drug ever served as a reminder to take your antidepressant medication?	38	25.7%
Has an antidepressant ad ever led you to talk with a friend or family member about you possibly having depression?	27	18.2%
Have you ever asked your doctor to switch you from an antidepressant you were taking at the time to a new antidepressant because of an advertisement?	26	17.6%
Have you ever made an appointment to see your doctor about depression because of an antidepressant advertisement?	20	13.5%
Have you ever asked your doctor to give you a prescription for an antidepressant because of an advertisement?	18	12.2%
Have you ever asked your doctor about depression because of an antidepressant drug advertisement?	16	10.8%
Have you ever called a toll free telephone number given in an antidepressant ad to get more information about the drug?	8	5.4%
Have you ever clipped an ad for an antidepressant from a magazine and shown it to your doctor?	7	4.7%
Have you ever switched doctors because you asked for a prescription for an antidepressant after seeing an ad, but were turned down by the doctor?	7	4.7%

Total Sample Size, N=148.