

Changing Perceptions of Depression: Ten-Year Trends From the General Social Survey

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Objective: The authors examined the changes in beliefs about the causes of and appropriate treatments for major depression between 1996 and 2006 in a representative sampling of U.S. adults. **Methods:** The authors compared data about depression from the mental health modules of the General Social Survey from 1996 (300 respondents) and 2006 (397 respondents), which measured perceptions of mental illness through use of vignettes. **Results:** There was an increase in the belief that depression is attributable to biological causes, from 77% in 1996 to 88% in 2006 (risk ratio [RR]=1.14, 95% confidence interval [CI]=1.04–1.23). Attitudes toward the treatment of depression changed as well, with 60% of respondents prioritizing a biological focus for treatment in 2006 compared with 48% in 1996 (RR=1.29, CI=1.04–1.59). These changes varied modestly by sociodemographic variables and were most pronounced among male, white, and elderly populations. **Conclusions:** There have been changes in attitudes about the causes and treatments of depression among the American public in the past decade, with a shift toward a biological framework. A greater understanding of beliefs about depression may lead to more effective outreach and education efforts. (*Psychiatric Services* 60:306–312, 2009)

Depression is among the most common mental illnesses and a leading cause of disability (1). According to a recent national study, the lifetime prevalence of major depression among adults is 16.2% and the 12-month prevalence is 6.6% (2). Depression accounts for an estimated \$83.1 billion in medical care and workplace costs (3).

Over the past decade there have been numerous efforts across the public and private sectors to increase knowledge and awareness of depression. Multimedia public service campaigns, such as Depression Is Real (www.depressionisreal.org), CBS Cares (www.cbs.com/cbs_cares/topics/?sec=5), and Real Men Real Depression (www.nimh.nih.gov/health/publications/

real-men-real-depression.shtml), focused on recognition and treatment of depression. The 1990s saw the initiation of National Depression Screening Day (4) and were declared “The Decade of the Brain” by former President George H. W. Bush in order to “enhance public awareness of the benefits to be derived from brain research” (www.loc.gov/loc/brain). These campaigns emphasize depression as a chronic medical illness, implying that treatment should be sought from a medical doctor (5). The past decade has also seen an increased focus on direct-to-consumer advertising by pharmaceutical companies, with a more than threefold increase in spending in that period (6). The increase in advertising of antidepressant medications

has been associated with greater use of these medications (7).

While rates of mental illness have remained stable in the past decade, rates of treatment have risen significantly (8). Treatment rates from the National Comorbidity Survey (NCS) showed an increase in the treatment of persons with a 12-month history of depression, from 30% in 1990 (9) to 52% in 2003 (2). Prescriptions for antidepressants have tripled in the past decade, with recent data suggesting that 7% of Americans have used an antidepressant in the past month (10). Intercontinental Marketing Services found antidepressants were the most common class of medications prescribed in the United States in 2007 (11). Relative use of psychotherapy for depression has declined, from 71% to 60% between 1987 and 1997 (12). The general medical setting has now become the most common place for mental health treatment overall, with a growth of 153% between 1990 and 2000 (13). A comparison of treatment rates between 1990 and 2003 from the NCS found significant differences among treatment rates for all mental disorders when stratified by age, race, sex, education, and marital status (8).

Stigma against people with mental illness has long been recognized. Conceptualizations of stigma include factors at both the society and individual levels. Negative social consequences, such as loss of status and opportunities for the individual, as well as discriminatory public policies can result from identification with a stigmatized group. Strong emotional responses on the part of the person being stigmatized, such as shame and fear, and by the stigmatizer, such as anger or pity, are also potentially

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harmful to those labeled as mentally ill (14). Negative qualities of incompetence, dangerousness, and blame are often attributed to persons with mental illness (15). Data from the 1996 General Social Survey (GSS) showed that Americans are likely to view persons with mental illnesses as more dangerous and less socially desirable than those without a mental illness (16) and that there are substantial differences in how people think about depression among children versus adults (17). Attitudes about depression influence acceptance of its diagnosis (18) and treatment (19), and beliefs about the causes of depression influence understanding of the utility of treatments (20,21). Analysis of the 1996 GSS mental health module also showed that there was a correlation between attributing depression to biological causes, such as brain chemistry and genetics, and recommending treatment in a medical setting (22). An understanding of how the American public thinks about depression is crucial to reducing stigma and increasing rates of appropriate treatment.

In this study, using data from the GSS, a nationally representative survey of attitudes about depression and its treatment, we investigated whether there has been a change in beliefs among Americans about depression and whether these beliefs differ by sociodemographic characteristics. The GSS is the largest sample of the changing cultural perceptions about depression and its treatment in the United States.

Methods

The data in this study are from the 1996 and 2006 mental health topical modules of the GSS. The GSS is conducted by in-person interviews with a full-probability sample of adults living in households in the United States. It is administered biannually. In 1996 the GSS had a response rate of 76% (N=1,444) and in 2006 a response rate of 71% (N=1,523). Detailed descriptions of the GSS and the mental health module methodology have been reported elsewhere (23). The data are publicly available without identifiers, and this study was granted exemption status by the institutional review board

of the University of Pennsylvania.

In the GSS mental health module, each respondent was asked questions regarding a vignette that described an individual with symptoms consistent with *DSM-IV* criteria (24) for a particular condition. We examined data from respondents who were given the vignette describing major depression in 1996 (300 respondents) and in 2006 (397 respondents). A transcript of the vignette has been published elsewhere (16).

Causal beliefs

Respondents were asked questions about potential causes of the vignette character's problem. Responses that the problems were "likely" or "somewhat likely" to be caused by "a chemical imbalance in the brain" or "a genetic or inherited problem" were considered as endorsing a biological cause of depression. These causes appeared to match most closely those endorsed by the current medical model. The variable for nonbiological causes of the character's depression included endorsements of "the way he was raised," "the person's own bad character," and "God's will." These causal categories were not mutually exclusive. We also examined the response for "stressful circumstances" as a cause of depression.

Treatment options

Respondents were asked what the vignette character should do and were given a list of options to endorse. Then they were asked to prioritize all the options they selected. We categorized their first-ranked responses as either biological or nonbiological. The biological variable consisted of seeking help from a general doctor, seeking help from a psychiatrist, or taking prescription medications—all options involving medical treatment. Nonbiological treatment included talking to a therapist or counselor, joining a self-help group, or talking to a clergy member or other religious leader—all options that have a talk-centered emphasis. Discussing the problem with friends or family was commonly ranked as the first treatment choice. Because this response does not represent clear treatment and may precede treatment from ei-

ther a biological or nonbiological route, we categorized for analysis the second-choice treatment option for those who responded this way. The categories of biological and nonbiological treatments were mutually exclusive. We also present data individually for each treatment option, including discussing the problem with friends or family.

Demographic characteristics

Age was measured in years and divided into three categories, 18–34 years, 35–54 years, and 55 years or greater. Race, determined by self-report, was categorized into white and nonwhite groupings. Education level was grouped into three categories; less than, equal to, or greater than completion of high school. We used self-report of social class as an indicator of socioeconomic status and created two categories, working class or poor, and middle or upper class. The GSS classified the population density of each respondent's neighborhood in keeping with U.S. Census convention, and we divided these categories into urban, suburban, and rural settings.

Statistics

We compared the demographic characteristics of the study population to determine whether they differed by year. We then compared rates of endorsement of biological and nonbiological causes and treatments by year overall, as well as for each specific sub-item, and created the unadjusted risk ratio (RR) to show the change in the proportion of responses from 1996 to 2006, which was tested by chi square analysis to determine statistical significance. Next we examined stratified rates of endorsement of biological causes, nonbiological causes, and biological treatments and examined changes over time for each stratum. Each proportion reported was weighted to account for sampling design. We also used a log-linear model to examine whether the relative risks for certain demographic variables differed across strata. This model included main effects for year, the demographic variables, and their interaction. Statistical significance of the interaction term was indicative of a difference across strata. All analyses were con-

Table 1

Demographic characteristics of respondents to the 1996 and 2000 General Social Survey who were given the depression vignette

Variable	1996 (N=300)		2006 (N=397)		χ^2 ^b	p
	N	% ^a	N	% ^a		
Sex					2.73	.10
Male	139	51	166	44		
Female	161	49	231	57		
Age (years)					2.18	.338
18–34	113	40	118	34		
35–54	114	37	154	40		
≥55	73	24	125	27		
Race					.85	.36
White	237	78	294	73		
Nonwhite	63	22	103	27		
Education					4.39	.114
High school not completed	56	19	57	14		
High school graduate	162	53	195	50		
Beyond high school	82	28	145	37		
Social class (self-report)					1.17	.281
Working class or poor	156	54	202	49		
Middle or upper	143	46	191	51		
Population density					.63	.731
Urban	153	51	119	52		
Suburban	104	35	62	30		
Rural	43	15	42	18		

^a Percentages are weighted to account for sampling design.

^b df=1

duced with SAS version 9.1.3 (25) and SUDAAN version 9.0 (26) to account for the complex sample design variables and the sampling weights.

Results

There was an increase in the proportion of respondents who identified the person in the vignette as having a mental illness, from 68% of respondents in 1996 to 75% in 2006, but this trend did not reach statistical significance. When respondents were subsequently asked if they thought the person described was likely to have depression, most people agreed with that description in both years (94% in 1996 and 95% in 2006; data not shown). Table 1 indicates that the sample populations in 1996 and 2006 were statistically equivalent in their demographic characteristics.

Distribution of causal beliefs

Table 2 presents the distribution of perceived causes of depression in 1996 and 2006. Biological etiologies

Table 2

Perceived causes of major depression and appropriate treatment options in 1996 and 2006 from the General Social Survey

Cause or treatment	1996 (N=300)		2006 (N=397)		Risk ratio	95% CI	χ^2 ^b	p
	N	% ^a	N	% ^a				
Perceived cause								
Biological	226	77	317	88	1.14	1.04–1.23	9.13	.003
Chemical imbalance	203	71	299	84	1.18	1.05–1.30	9.25	.003
Genetic problem	151	54	238	66	1.23	1.06–1.43	7.38	.007
Nonbiological	185	62	206	55	.89	.78–1.03	2.33	.128
Bad character	109	39	118	33	.85	.67–1.08	1.87	.173
Way he or she was raised	137	47	152	42	.89	.74–1.09	1.38	.242
God's will	43	15	46	11	.74	.47–1.15	1.9	.170
Other: life stresses	275	94	350	95	1.01	.96–1.05	.08	.781
Treatment option								
Biological ^c	122	48	206	60	1.29	1.04–1.59	5.53	.02
Nonbiological ^d	143	52	148	41	.78	.63–.96	5.53	.02
See a general medical doctor	224	80	334	92	1.15	1.09–1.22	19.12	<.001
See a psychiatrist	276	80	317	88	1.11	1.02–1.20	6.27	.013
Use prescription medications	201	76	301	82	1.08	.97–1.19	2.31	.130
Talk to clergy or other religious leader	256	93	328	89	.96	.92–1.02	1.76	.186
Talk to a counselor or therapist	258	90	37	92	1.01	.96–1.08	.25	.621
Join a self-help group	245	86	331	88	1.02	.95–1.09	.25	.615
See a spiritual or natural healer	62	22	151	42	1.92	1.43–2.63	20.30	<.001
Talk to friends or family	283	97	360	97	1.00	.97–1.02	.01	.921
Use nonprescription medication	33	12	52	12	1.04	.68–1.61	.04	.842
Check into a psychiatric hospital	71	28	101	29	1.05	.81–1.37	.15	.695

^a Percentages are weighted to account for sampling design and reflect combined responses of “likely” and “somewhat likely.”

^b df=1

^c Includes as first-line treatment for depression going to a general medical doctor or a psychiatrist or using prescription medications, or includes these options as a second-line treatment after talking with friends or family

^d Includes as first-line treatment for depression talking to a therapist or counselor, talking to a clergy member or other religious leader, or joining a self-help group, or includes these options as a second-line treatment after talking with friends or family

were more highly endorsed in 2006, with 88% of respondents rating at least one of these causes as likely, compared with 77% of respondents in 1996 (RR=1.14, $p<.01$). A chemical imbalance in the brain and a genetic or inherited problem remained the first and second most commonly endorsed causes of depression, respectively. There was a modest decrease in the endorsement of nonbiological causes of depression, but this difference did not reach statistical significance. In both study years, life stresses were endorsed by about 95% of all respondents as a cause of depression.

Distribution of treatment beliefs

Table 2 also illustrates that in 2006, 60% of respondents believed that biological treatment for depression was

an appropriate first choice, compared with 48% in 1996 (RR=1.29, $p<.05$). When the treatment recommendations were examined individually, we found a significant increase in the proportion of respondents who recommended seeking treatment from both general medical doctors and psychiatrists. There was a trend toward greater recommendation of prescription medications. Talking to friends or family remained the most commonly endorsed treatment option in both years. Also notable was a large increase in the proportion of respondents who endorsed seeking help for depression from a spiritual healer, from 22% in 1996 to 42% in 2006 (RR=1.92, $p<.001$). Only one respondent in 1996, and none in 2006, felt that no treatment was appropriate for the person described in the vignette.

Sociodemographic variables

There was an increase in attribution of depression to biological causes among male respondents, with 71% endorsing these causes in 1996 versus 87% in 2006 (RR=1.22, $p<.01$) (Table 3; a more detailed version of this table, showing specific sample sizes, is available as an online supplement to this article at ps.psychiatryonline.org). Among female respondents there was a significant decrease in endorsing nonbiological causes, from 64% to 52% (RR=.80, $p<.05$), but there was no real change among men in supporting nonbiological causes of depression.

White respondents showed an increase in attributing depression to biological causes, from 79% in 1996 to 89% in 2006 (RR=1.12, $p<.05$), and an increase in support of biological treatment, from 46% in 1996 to

Table 3

Perceived causes of and recommended treatments for major depression in 1996 and 2006 from the General Social Survey, by demographic variables^a

Variable ^c	Biological causes					Nonbiological causes					Biological treatment ^b				
	1996 % ^c	2006 % ^c	RR	χ^2 ^d	p	1996 % ^c	2006 % ^c	RR	χ^2 ^d	p	1996 % ^c	2006 % ^c	RR	χ^2 ^d	p
Total	77	88	1.14	9.13	.003	62	55	.89	2.33	.128	48	60	1.29	5.53	.020
Sex															
Male	71	87	1.22	8.39	.004	59	60	1.01	.02	.891	46	58	1.29	2.86	.093
Female	84	89	1.06	1.81	.180	64	52	.80	4.64	.033	50	61	1.27	3.09	.080
Age (years)															
18–34	74	85	1.14	2.86	.093	72	56	.77	5.46	.021	47	54	1.14	.68	.411
35–54	84	89	1.06	1.02	.315	52	54	1.02	.03	.858	51	63	1.34	2.98	.086
≥55	73	98	1.25	8.47	.004	59	58	.98	.01	.908	45	61	1.43	3.36	.069
Race															
White	79	89	1.12	7.54	.007	60	53	.88	1.96	.163	46	60	1.37	7.08	.009
Nonwhite	73	86	1.19	2.43	.121	67	62	.92	.40	.528	56	57	1.01	.00	.978
Education															
<High school	75	75	1.01	.00	.960	55	61	1.12	.46	.501	58	48	.81	.66	.149
High school	75	89	1.19	9.93	.002	64	63	.98	.05	.822	44	61	1.44	7.30	.008
>High school	84	91	1.09	1.57	.212	62	43	.69	5.36	.022	49	61	1.30	2.04	.156
Social class (self-report)															
Working class or poor	74	88	1.19	8.19	.005	62	55	.88	1.36	.245	47	59	1.28	3.31	.070
Middle or upper	81	89	1.09	2.89	.091	61	56	.91	.83	.365	49	60	1.27	2.37	.125
Population density															
Urban	79	88	1.11	3.68	.057	61	49	.80	2.7	.102	41	64	1.63	10.13	.002
Suburban	77	89	1.16	3.82	.052	62	58	.93	.20	.651	57	68	1.35	1.59	.209
Rural	73	85	1.16	1.10	.295	65	58	.89	.33	.568	49	48	.99	.00	.981
Religiosity															
Strong	81	85	1.05	.69	.409	64	59	.93	.58	.447	43	57	1.34	3.48	.064
Not strong	74	91	1.23	12.62	.001	60	52	.87	1.58	.210	51	60	1.23	2.32	.130

^a A more detailed version of this table, showing additional information about sample sizes, is available as an online supplement to this article at ps.psychiatryonline.org.

^b The category of biological treatment was mutually exclusive with that of nonbiological treatment, and therefore only data about biological treatments are displayed.

^c Percentage of respondents endorsing each variable as likely and somewhat likely. The reported percentages are weighted to account for sampling design.

^d df=1

60% in 2006 ($RR=1.37$, $p<.05$). There was no significant change in attitudes about the causes or treatment of depression among nonwhite respondents.

Among the oldest age group there was an increase in support of biological causes of depression, from 73% in 1996 to 98% in 2006 ($RR=1.25$, $p<.01$), a trend that was not statistically significant in the younger age groups. Only the youngest age group showed a significant decrease in support of nonbiological causes of depression, from 72% to 56% ($RR=.77$, $p<.05$).

The distribution of causal attribution varied by education level. Among those with a high school education there was a marked increase in endorsement of biological causes (75% versus 89%; $RR=1.19$, $p<.01$), whereas there was no significant change in the other education strata. Those with more than a high school education were less likely to endorse nonbiological causes in 2006 compared with 1996 (43% versus 62%; $RR=.69$, $p<.05$), whereas the other two education categories showed minimal change in this variable. Those with a high school education showed a greater support of biological treatment options. Nonsignificant patterns were seen in the other education groups.

Greater support of biological causes and treatments held across socioeconomic classes and population density, although this finding was statistically significant among only those who identified as poor or working class and those living in urban areas. There was a strongly significant difference in attribution of biological causes among those who said that they were not strongly religious (74% to 91%; $RR=1.23$, $p<.01$) but there was no significant change in any of the outcome variables for those reporting strong religious beliefs.

In the series of log-linear models there were no statistically significant differences across any of the examined strata (data not shown).

Discussion

We found substantial changes in the American public's beliefs about depression, with an increasing endorse-

ment of biological causes and treatments over a ten-year period. Although it is unknown what led to the changes in attitudes that we observed, there are a number of potential influences. In the past decade there have been many widespread multimedia public awareness campaigns about depression and other mental illnesses, both publicly and privately funded. To our knowledge there have not been detailed studies in the United States to examine direct links between public campaigns and changes in attitudes. However, studies from other developed countries, including Australia (27) and England (28), have shown an increase in awareness and recognition of depression as well as a shift in beliefs about treatments after similar public-awareness campaigns.

Concurrent with our observations of public perceptions about depression, there has also been rapid growth in direct-to-consumer advertising of antidepressant medications that may contribute to an increasingly medicalized perspective. Although our data showed only a modest increase in the proportion of respondents who supported prescription medication as a treatment for depression, there was a substantial increase in those suggesting seeking treatment from physicians, either general practitioners or psychiatrists. It is likely that such sources of treatment would include discussion or recommendation of prescription medication. Although these advertisements are intended to increase sales of a specific medication, they appear to be framed, and may serve as, industry-sponsored public service announcements, with a description of the symptoms of depression and a message that depression is a medical illness best treated by a physician, presumably in part with medications. Furthermore, advertisements for antidepressant medications often instruct viewers to discuss the matter with their physician, which corresponds to the large increase we found in recommending treatment from a primary care doctor. Although the increase in support of medication as a treatment was modest, recommending treatment by a

physician may implicitly endorse treatment with medication.

The changing attitudes about depression that we observed mirror national changes in the treatment of depression, which show that the role of primary care physicians in treating depression has grown along with the use of antidepressant medications (13). The use of psychotherapy among those receiving treatment for depression has shown a relative decline (12), which parallels the attitudes of our study populations in which few survey respondents recommended talk therapy or counseling as a first-line treatment for depression. This trend does not reflect current research on depression that demonstrates that psychotherapy is effective in treating depression (29), nor does it reflect treatment guidelines that list psychotherapy among first-line treatments for mild and moderate depression (30).

Most respondents considered the support of family and friends as a first-line treatment for depression, a finding consistent with studies in other developed countries about lay beliefs (31). Although this could be viewed simply as a type of self-help strategy (32), it may indicate an essential element of help-seeking behavior and an important gateway to mental health care. The reliance of Americans on close social networks further underscores the importance of understanding public beliefs about mental illness. It is from friends and family that information, support, and society's expectations are communicated. These forces are likely to guide recommendations to family members or friends who are in mental distress (17,33).

It is also important to note that we found no significant decline in endorsement of nonbiological causes of depression in the sample as a whole. A large proportion of the U.S. population—about a third of the respondents in this study—believes that depression is likely caused by bad character, despite also believing perhaps that it is a brain disorder. This belief that a deficient character may lead to mental illness illustrates that stigma about depression remains. This type of belief places blame for the illness

on the person with depression, a stigmatizing attitude that may undermine progress toward acceptance of those with mental illness.

Studies in other developed countries have looked at similar issues. A study in Germany compared attitudes about treatment for major depression and schizophrenia. It found that for both illnesses there was a significant increase in the proportion of respondents who recommended seeking help from a psychotherapist or psychiatrist. This study found a decline in the proportion of those suggesting seeking help for these illnesses from a general practitioner (34). A study in Australia found that between 1998 and 2004, respondents were more likely to suggest that a person with depression seek help from a general practitioner and a counselor, but there was no meaningful change in the proportion of respondents suggesting that a person with depression seek help from a psychiatrist or psychologist or take medications (33). Another Australian study found that respondents in 2003–2004, compared with respondents in 1995, were more likely to attribute depression to a genetic cause, the death of someone close, and problems from childhood (35).

There are two main limitations of our analysis. First, because of the ecological design of the GSS, we were unable to make any causal inferences between changing beliefs about the causes of depression and recommendations for treatment; we could observe only associations. Longitudinal cohort studies would be needed to make a causal link and track these trends over time. Second, although the GSS is the largest nationally representative survey to examine these issues and has a rigorous sampling technique, we examined data from only the subset of the study population that was asked about the vignette describing depression, thus limiting our sample size. Some of the trends we observed, particularly among specific demographic groups, might have been more pronounced with a larger sample.

Depression remains underrecognized and undertreated. There is much left to learn about how atti-

tudes might translate into action when someone is faced with his or her own symptoms of depression or with symptoms of someone close. Although many effective treatments are available, too many people suffer from depression without seeking or accepting treatment. Further study about how attitudes differ between sociodemographic groups may provide an avenue to reducing disparities in treatment rates.

Conclusions

There have been changes in attitudes about the causes and treatments of depression among the American public in the past decade, with a shift toward a biological framework. Despite these changes, negative attitudes about persons with depression are prevalent. A greater understanding of beliefs about depression may lead to more effective outreach and education efforts.

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Submissions for Datapoints Column Invited

Submissions to the journal's Datapoints column are invited. Datapoints encourages the rapid dissemination of relevant and timely findings related to clinical and policy issues in psychiatry. National data are preferred. Areas of interest include diagnosis and practice patterns, treatment modalities, treatment sites, patient characteristics, and payment sources. The analyses should be straightforward, so that the figure or figures tell the story. The text should follow the standard research format to include a brief introduction, description of the methods and data set, description of the results, and comments on the implications or meanings of the findings.

Datapoints columns, which have a one-page format, are typically 350 to 400 words of text with one or two figures. The maximum total word count—including the title, author names, affiliations, references, and acknowledgments—is 500. Because of space constraints, submissions with multiple authors are discouraged; submissions with more than four authors should include justification for additional authors.

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