DOI:
10.1176/appi.ps.201500164

Document Version
Peer reviewed version

Word count: 3,000

Abstract: 250 words

Tables: 2

Attitudes toward Mental Health Help-Seeking as Predictors of Future Help-Seeking Behavior and Use of Mental Health Services

Mojtabai R, Evans-Lacko S, Schomerus G, Thornicroft G. Attitudes Toward Mental Health Help Seeking as Predictors of Future Help-Seeking Behavior and Use of Mental Health Treatments. Psychiatr Serv. 2016:appips201500164.

ABSTRACT

Objectives: To examine the association of attitudes toward mental health help-seeking and beliefs about the effectiveness of mental health treatments with future mental health help-seeking behavior and use of specific mental health services among the general population.

Methods: Data on attitudes and beliefs at baseline were taken from the US National Comorbidity Survey (NCS), a general population survey conducted in 1990–1992. Help-seeking from various providers, use of psychiatric medications, and use of psychological counseling/therapy were examined in National Comorbidity Survey–Follow-up, which re-interviewed 5,001 of the original NCS participants in 2001-2003.

Results: Willingness to seek professional help when experiencing serious emotional problems and feeling comfortable talking about personal problems with professionals were significantly associated with help-seeking and use of treatments. A third (33.4%) of participants who stated that they would “definitely go” to see professionals if they had a serious emotional problem or that they felt “very comfortable” talking with professionals sought help, compared to 20.7% of those who stated that they would “definitely not go” and 24.4% of those who reported being “not at all comfortable”. The associations were consistent among participants with and without past history of help-seeking and those with and without mood, anxiety or substance disorders during the follow-up period. Embarrassment if friends found out and beliefs about effectiveness of treatments were not associated with future help-seeking or service use.

Conclusions: The findings have potential implications for future public mental health campaigns by identifying specific attitudinal factors most closely linked to future mental health help-seeking.

Improving public attitudes toward professional mental health help-seeking has been a major focus of campaigns aimed at increasing mental health service use (1-7). This emphasis is partly based on the findings of past research that have identified significant attitudinal barriers to mental health help-seeking (8-12).

There is some evidence, however, that public attitudes toward mental health help-seeking and mental health treatments have become more positive in more recent years (13, 14). Time-trend studies of public attitudes have shown growing endorsement for both psychiatric medication and psychotherapy in Western industrialized countries (15). In UK and Australia, changes in public attitudes corresponded with large-scale public and media campaigns in these countries (4, 5, 16-19). These changes in attitudes were matched by significant increases in the use of mental health services in recent years (20-25). Although it is plausible to link increased use of mental health services in recent years to changes in attitudes, with rare exceptions (26), there is surprisingly little evidence of a direct link between attitudes towards professional mental health help-seeking and actual help-seeking behavior from prospective studies (27-29). A study from Australia prospectively examined association of attitudes with patterns of help-seeking in a general population sample (26). However, the follow-up in that study was limited to individuals who were symptomatic at baseline and more than 97% of participants reported using services at follow-up.

Psychological studies suggest that the link between expressed attitudes and behavior is often not direct and is moderated by various other factors including norms and expected consequences of the behavior (6, 30-33). Furthermore, changes in social norms and social desirability of an attitude may influence expression of that attitude in surveys. Thus, a direct association between attitudes toward help-seeking and actual help-seeking behavior cannot be assumed and this association needs to be empirically assessed. Furthermore, cross-sectional studies of the association of help-seeking attitudes with behaviors may not provide valid inferences about the causal impact of attitudes because of possible reciprocal impact of

behavior on attitudes (34). People's attitudes could simply change after they use services (35). Thus, the association needs to be assessed prospectively.

This study addresses the gap in past research by prospectively examining the link between attitudes towards professional mental health help-seeking and later help-seeking behavior using data from the National Comorbidity Survey (NCS) conducted in 1990-1992 and its follow-up (NCS-2), conducted in 2001-2003. More specifically, the study examined the association of attitudes with help-seeking from different professionals and the use of different types of treatments. The study also assessed whether these associations varied according to past history of help-seeking and presence of psychiatric disorders during the follow-up period. The findings have potential implications for design of future public health campaigns aimed at increasing professional mental health help-seeking. The findings also have implications for better understanding of the contribution of changes in attitudes to recent trends in use of mental health services (25, 36) among individuals with and without mental disorders.

METHODS

Sample

The NCS was a nationally representative survey of 8,098 participants aged 15–54 in the non-institutionalized civilian population of the US (37). The response rate was 82.4%. Interviews were conducted face-to-face by trained lay interviewers and administered in two parts. Part I, which included the core diagnostic interview, was administered to all participants. Part II, which included assessments of additional disorders as well as questions regarding attitudes toward help-seeking, was administered to a probability subsample of 5,877 participants including all participants aged 15–24 years, all others with any lifetime DSM-III-R disorder assessed in Part I, and a random sub-sample of other Part I participants. The Part II sample was weighted to adjust for differential probabilities of selection and for discrepancies between the sample and the

Census population on socio-demographic and geographic variables. The design and weighting of NCS data are described in more detail elsewhere (37).

The NCS-2 sought to follow-up all 5,877 Part II NCS participants. Of these, 166 were found to be deceased at follow-up. A total of 5,001 (87.6%) of those surviving were re-interviewed. NCS-2 participants were administered a modified version of the baseline interview assessing the onset and course of disorders between the two surveys.

Baseline assessments

Attitudes toward mental health help-seeking were assessed by three questions: 1) ”If you had a serious emotional problem, would you definitely go for professional help, probably go, probably not go, or definitely not go for professional help?” 2) “How comfortable would you feel talking about personal problems with a professional—very comfortable, somewhat, not very, or not at all comfortable?” and 3) “How embarrassed would you be if your friends knew you were getting professional help for an emotional problem—very embarrassed, somewhat, not very, or not at all embarrassed?” For this study, the responses were coded so that a higher score indicates more positive attitudes.

Beliefs about effectiveness of professional help and likelihood of recovery without it were assessed by two questions: 1) “Of the people who see a professional for serious emotional problems, what percent do you think are helped?” and 2) “Of those who do not get professional help, what percent do you think get better even without it?” For this study, responses to each question were categorized into 4 mutually exclusive categories: 0-24%, 25-49%, 50-74%, 75-100%. In addition, the participant’s belief about the benefit of treatment was operationalized as the difference between the two percentages. This computed difference was categorized into three categories: *not beneficial* (≤0% difference), *very beneficial* (≥30% difference) *somewhat beneficial* (0%-29% difference). The two latter categories were defined based on the median

difference among participants whose responses indicated any benefit of treatment (>0% difference).

Lifetime professional mental health help-seeking was assessed in NCS by asking participants to identify from a list the types of professionals that they had ever seen for problems with their “emotions or nerves” or their “use of alcohol or drugs.” The list included mental health professionals (psychiatrists, psychologists, social workers, counselors), general medical professionals (general practitioners, family physicians, other physicians, nurses, occupational therapists, other health professionals), and other professionals (ministers or priests, spiritualists, herbalists and others). A history of contact with any of these professionals was recorded as lifetime professional mental health help-seeking at baseline.

Lifetime psychiatric disorders were assessed using a modified version of the World Health Organization Composite International Diagnostic Interview (CIDI) Version 1.1, a fully-structured, lay-administered diagnostic interview (38) based on DSM-III-R criteria. In this study we focused on anxiety disorders (simple phobia, social phobia, panic disorder with/without agoraphobia, agoraphobia without panic disorder, generalized anxiety disorder, post-traumatic stress disorder), mood disorders (major depressive disorder, dysthymia, bipolar disorder) and substance disorders (alcohol and drug abuse/dependence). Concordance of these diagnoses with clinician diagnoses has been demonstrated in previous studies (39, 40).

Severity of mental disorders was assessed consistent with past research (34) by asking about the level of interference and suicidality. Participants were asked how much their symptoms interfered with their lives and activities on a scale ranging from “not at all” to “a lot”. The question was asked following questions about symptoms of each disorder except for post-traumatic stress disorder and substance disorders. Participants were also asked if they ever thought about, planned or attempted suicide.

Sociodemographic variables included sex, age, race/ethnicity (Non-Hispanic white, Non-Hispanic black, Hispanic, other), education, family income compared to Federal Poverty Level (FPL) for 1990, and any health insurance, all based on responses in the NCS interview.

Follow-up assessments

Professional mental health help-seeking was assessed in NCS-2 similar to NCS using a list of professionals. Contact with any of these professionals was recorded as professional mental health help-seeking during the follow-up.

Use of specific mental health treatments was assessed by asking the participants if they had used a prescription medicine for “emotions, nerves, or mental health from any type of professional” since the baseline interview or had “one or more sessions of psychological counseling or therapy for emotional problems that lasted 30 minutes or longer with any type of professional”. In addition, participants were asked about the number of years since baseline in which they had received either type of treatment.

Psychiatric disorders present during the follow-up were assessed in the NCS-2 follow-up using CIDI Version 3.0 (41) which is based on the DSM-IV criteria. The same disorder groups were included in this assessment as in the baseline assessment.

Severity of disorders during the follow-up was also assessed by the level of interference and suicidality.

Data Analysis

Data were analyzed in two stages. First, the association of attitudes and beliefs at baseline with actual professional mental health help-seeking and use of treatments during the follow-up period was examined using unadjusted and adjusted binary logistic regression models. Negative binomial regression models were used for examining the association of attitudes and beliefs with the number of years of use of each treatment type during the follow-

up. Adjusted analyses controlled for sex, race/ethnicity, baseline age, education, employment, family income, health insurance, mood, anxiety or substance disorders, level of interference, suicidal ideations, plans or suicide attempts, and professional mental health help-seeking. The analyses also adjusted for psychiatric disorders, interference, and suicidality during the follow-up. These variables have been shown to be associated with professional help-seeking in past research (26, 33, 34, 42). Attitude and belief variables were entered into the models one at a time because of the strong correlation among some of these variables.

In the second step of the analyses, we assessed whether the associations were consistent or varied according to baseline lifetime professional help-seeking and follow-up psychiatric disorders. For these analyses, we tested the interaction terms for baseline help-seeking and follow-up disorders with attitude ratings in the regression models for each attitude and each outcome. We further conducted stratified analyses according to follow-up psychiatric disorders (meeting any disorder criteria vs. not meeting the criteria for any disorder).

STATA 13 software was used for the analyses. Because of multiple statistical tests used in the analyses, a conservative $p<.01$ cutoff was used for judging the statistical significance of the results. All percentages reported are weighted and do not necessarily correspond to percentages based on raw numbers.

RESULTS

The characteristics of NCS participants who were followed up in NCS-2 have been previously reported (43). Almost half of the participants (n=3,333, 49.2%) met the criteria for a lifetime mood, anxiety or substance disorder at baseline and 1,969 (30.8%) reported ever having sought professional help for mental health or substance related problems. Approximately half of the sample (n=2,784, 48.9%) met the criteria for a disorder during the follow-up. Participants generally had a positive attitude toward mental health help-seeking and viewed mental health treatments as beneficial (Table 1).

A total of 1,664 (27.8%) participants reported professional mental health help-seeking during the follow-up: 1,163 (18.3%) from mental health professionals, 918 (15.2%) from general medical professionals and 224 (3.0%) from other professionals (some individuals sought help from more than one type of provider). Somewhat less than one in five (n=1,178, 19.4%) reported using prescription medications and 1,203 (19.7%) reported using psychological counseling/therapy.

Willingness to seek professional help for serious emotional problems and feeling comfortable talking about personal problems with a professional were both associated with professional help-seeking and use of treatments in the follow-up (Table 1). For instance, 33.4% of participants who stated that they would definitely seek professional help sought such help in follow-up compared to 20.7% who stated that they would definitely not seek such help (Table 1). In unadjusted logistic regression analysis, each higher level on the willingness scale was associated with 29% higher odds of help-seeking in follow-up (odds ratio [OR]=1.29, 99% confidence interval [CI]=1.14-1.46, p<.001). Associations between the willingness rating and help-seeking from mental health professionals (OR=1.21, 99% CI=1.05-1.41, p=.001) and general medical professionals (OR=1.33, 99% CI=1.16-1.54, p<.001), were both statistically significant. The association between willingness to seek professional help and help-seeking from other professionals was of a similar magnitude, but not statistically significant at p<.01 (OR=1.37, 99% CI=0.95-1.97, p=.024), possibly due to the smaller number of participants seeking help from these professionals (Table 1). Willingness to seek professional help was also associated with the use of psychiatric medications (OR=1.35, 99% CI=1.18-1.55, p<.001) and psychological counseling/therapy (OR=1.23, 99% CI=1.09-1.39, p<.001) (Table 1).

Feeling comfortable to seek professional help was similarly associated with help-seeking and use of treatments during the follow-up, including help-seeking from any professionals (OR=1.23, 99% CI=1.08-1.41, p<.001), from mental health professionals (OR=1.22, 99% CI=1.05-1.43, p=.001), from general medical providers (OR=1.21, 99% CI=1.05-1.40, p=.001),

use of psychiatric medications (OR=1.28, 99% CI=1.12-1.46, *p*<.001), and use of psychological counseling/ therapy (OR=1.23, 99% CI=1.04-1.45, *p*=.002) (Table 1).

Feeling embarrassed if others found out about help-seeking and estimated benefits of help-seeking were not significantly associated with help-seeking or use of treatments in the follow-up (Table 1).

Results of the multivariable logistic regression analyses in which each attitude rating was entered separately were mainly consistent with the results of unadjusted analyses (Table 2). Willingness to seek professional help was associated with help-seeking from any professionals and from general medical professionals, as well as with both types of treatment. Similarly, feeling comfortable talking about personal problems was associated with professional help-seeking, help-seeking from mental health professionals as well as receiving prescription medications (Table 2). Associations of other attitude ratings with future help-seeking and use of treatments remained non-significant in adjusted analyses.

The associations were consistent among participants with and without a history of professional mental health help-seeking at baseline and with and without a first onset mental disorder during the follow-up as indicated by the non-significant interaction terms of these variables with attitude variables in models predicting each outcome (data not shown). The results of stratified analyses based on presence of psychiatric disorders are presented in Appendix Tables A and B. While some of the significant findings in the main analyses were no longer statistically significant in these stratified analyses due to smaller sample sizes, the direction of associations were consistent with the main analyses.

In further analyses, attitudes and perceived benefits of professional help were not associated with the number of years during the follow-up in which the participants had used psychiatric medications or counseling/psychotherapy (data not shown).

DISCUSSION

There were three main findings in the study. First, willingness to seek professional help and feeling comfortable talking to a professional about personal problems were positively associated with future professional help-seeking and use of mental health services. This finding extends the results of previous cross-sectional studies that related individual attitudes with past help-seeking or help-seeking intentions (6, 34, 44). Willingness to seek help for emotional problems may influence intentions to actually seek professional help when the the person perceives a need for such help, irrespective of past help-seeking behavior (44). The findings thus lends support to the results of cross-sectional studies that used more elaborate theoretical models describing the formation of help-seeking intentions, but could only speculate on whether these intentions would in fact translate into future help-seeking (44).

Second, the association of attitudes with help-seeking and use of services appeared to be consistent across subgroups with and without past history of professional help-seeking at baseline and those with and without mood, anxiety or substance disorders during the follow-up. Thus, the effects of attitudes toward mental health treatment seeking appear to be similar across these groups characterized by different levels of need and past history of help-seeking. Consistent with this finding, comparisons between early 1990s and early 2000s found similar increase in service use among those with and without mental health problems (21). Past research has also found that prior history of treatment for depression is associated with more positive attitude toward medical interventions for depression (45).

Third, we found no significant associations between feeling embarrassed if others found out about the person's help-seeking and future help-seeking behavior. Past research has produced mixed results regarding the association of fear of negative attitudes of family and friends with mental health help-seeking intentions (6, 27, 46-48). Surprisingly, we also found no association between perceived benefits of professional help-seeking and future help-seeking. Informing public regarding the benefits of treatments is a major focus of many public mental health campaigns (16-18). However, the findings from this study suggest that cognitive factors

such as more positive estimates of benefits of treatment may be less important in predicting future behavior than emotional acceptance of help-seeking. Better understanding of factors that influence accepting attitudes toward mental health treatment seeking may help to improve future efforts aimed at increasing help-seeking behavior.

There were a number of limitations in this study. First, NCS did not specifically assess attitudes toward psychotherapy or medications. The associations with service use may vary according to the type of services (6, 26, 45). Second, the intensity of service use was not assessed. Positive attitudes toward help-seeking may be associated with the volume or frequency of service use as well as any use. Third, the study examined the association of existing variations in attitudes with future help-seeking. Variation in attitudes as a result of public campaigns or other intervention may have a different pattern of associations with help-seeking behavior. Fourth, the study examined the association between attitudes at baseline and any help-seeking over an 11-year period. Individual attitudes might have changed over this long period, thus attenuating associations with help-seeking behavior. Fifth, the surveys did not assess whether the participants considered themselves as having a mental health problem in need of professional help. This perception may indeed influence both attitudes and help-seeking or moderate their relationships (49). Finally, all assessments were based on self-report and hence are open to recall and social desirability biases.

In the context of these limitations, the findings present some insights into the association of attitudes toward professional mental health help-seeking and subsequent help-seeking behavior in the community. The increasingly positive attitudes toward professional mental health help-seeking, especially in the younger generation, has likely contributed to increased use of services over the past decade and will continue to do so in the coming years (13, 25). Future research on correlates of this attitude change could provide important insights into the trends in mental health service use and the factors driving these trends.

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Table 1: Professional mental health help-seeking over the 11-year follow-up period according to baseline attitudes towards mental health help-seeking and beliefs about the benefits of mental health treatments in National Comorbidity Survey (1990-1992) and National Comorbidity Survey Follow-up (2001-2003).

			Mental health help-seeking during the follow-up											
			Any professional help-seeking		From mental health professionals		From general medical professionals		From other professionals		Prescription psychiatric medication		Psychological counseling/ therapy	
Baseline attitudes and beliefs	**N**	**Column %**	**N**	**Row %**	**N**	**Row %**	**N**	**Row %**	**N**	**Row %**	**N**	**Row %**	**N**	**Row %**
Will go for professional help for serious emotional problem														
Definitely not	202	4.5	45	20.7	31	15.9	22	7.1	4	2.0	30	11.7	32	15.9
Probably not	887	16.4	235	23.1	160	16.4	129	11.6	26	2.1	171	15.2	168	17.4
Probably	2,208	44.8	657	25.9	442	16.3	380	15.0	95	2.6	458	18.0	459	16.6
Definitely	1,701	34.2	727	33.4	530	22.3	387	18.3	99	4.0	519	24.2	544	23.5
Comfortable talking about personal problems with a professional														
Not at all	437	8.7	127	24.4	92	17.6	76	12.7	16	2.8	89	15.9	87	16.7
Not very	928	18.0	238	21.5	146	13.3	136	11.5	26	1.9	168	13.9	155	13.7
Somewhat	2,359	47.2	773	27.8	542	17.9	422	15.6	108	2.8	541	19.5	571	19.5
Very	1,272	26.1	526	33.4	383	23.0	284	18.2	74	4.1	380	24.3	390	22.9
Embarrassed if friends knew about getting professional help														
Very	470	9.8	137	26.5	95	19.0	70	12.2	14	2.2	96	16.6	100	19.0
Somewhat	1,656	33.0	497	24.8	336	15.3	276	14.4	68	2.5	346	17.5	347	16.2
Not very	1,233	24.3	426	30.4	305	20.3	236	17.4	57	3.2	295	21.0	315	21.4
Not at all	1,638	32.9	604	29.2	427	19.8	336	15.4	85	3.5	441	21.0	441	20.3
What percent of people who see a professional are helped?														
0-24%	522	10.6	162	27.3	111	19.7	86	13.6	23	3.0	122	19.6	112	20.5
25-49%	789	15.8	248	27.4	169	17.7	142	15.8	40	3.5	168	18.4	186	19.6
50-74%	2,205	46.2	734	28.5	519	18.8	398	15.4	91	2.7	514	19.9	531	19.0
75-100%	1,327	27.4	465	27.6	328	18.2	261	15.3	65	3.3	331	19.1	338	18.9

What percent of people who do not get professional help get better?														
0-24%	1,883	43.4	617	26.2	435	18.2	337	13.4	84	2.8	452	18.8	457	19.3
25-49%	1,265	28.4	418	26.4	314	19.9	219	12.9	47	2.3	266	15.9	323	20.0
50-74%	1,131	24.7	375	31.1	247	18.8	218	18.3	60	3.3	276	23.1	254	19.6
75-100%	164	3.5	53	29.9	37	17.0	25	17.8	8	4.6	33	19.5	41	19.0
Difference in percent who get better with professional help and without														
≤ 0%	1,124	25.2	355	28.5	228	16.9	202	16.6	54	3.0	255	20.1	239	18.4
1%-29%	1,283	28.4	393	27.0	287	19.8	219	13.6	60	3.0	277	18.7	301	19.9
≥ 30%	1,989	46.4	694	27.6	503	19.3	368	14.4	83	2.7	482	18.8	520	20.0

Table 2: Multivariable analyses of the association of attitudes towards mental health help-seeking and beliefs about the benefits of mental health treatments at baseline with professional mental health help-seeking and use of mental health treatments over the follow-up in National Comorbidity Survey (1990-1992) and National Comorbidity Survey Follow-up (2001-2003).

	Mental health help-seeking during the follow-up											
	Any professional help-seeking		From mental health professionals		From general medical professionals		From other professionals		Prescription psychiatric medication		Psychological counseling/ therapy	
Baseline attitudes and beliefs	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**
Will go for professional help for serious emotional problem	1.26	1.07-1.47**	1.19	0.98-1.44	1.24	1.05-1.47*	1.26	0.83-1.91	1.30	1.10-1.54**	1.18	1.01-1.39*
Comfortable talking about personal problems with a professional	1.22	1.04-1.43*	1.22	1.01-1.47*	1.16	0.98-1.37	1.19	0.79-1.80	1.25	1.08-1.46**	1.21	0.99-1.47
Embarrassed if friends knew about getting professional help	1.03	0.89-1.19	1.07	0.93-1.23	0.95	0.83-1.09	1.08	0.84-1.38	1.01	0.87-1.16	1.05	0.89-1.25
What percent of people who see a professional are helped?[b]	0.98	0.93-1.04	0.99	0.92-1.06	0.97	0.91-1.05	0.99	0.88-1.11	0.97	0.90-1.04	0.98	0.91-1.05
What percent of people who do not get professional help get better? [b]	1.04	0.97-1.12	1.00	0.92-1.08	1.06	0.98-1.15	1.03	0.89-1.19	1.02	0.95-1.10	1.00	0.92-1.09
Difference in percent who get better with professional help vs. without[b]	0.97	0.92-1.02	1.00	0.95-1.05	0.96	0.90-1.02	0.97	0.87-1.08	0.97	0.91-1.04	0.99	0.93-1.05

Note: AOR stands for adjusted odds ratio, CI for confidence interval.

[a] Based on coefficients from logistic regression models in which each attitude/belief variable was entered into a separate model adjusting for sex, race/ethnicity, baseline age, education, employment, family income, health insurance, mood, anxiety or substance disorders, level of interference, suicidal ideations, plans or suicide attempts, professional mental health help-seeking, follow-up psychiatric disorders, interference, suicidal ideation, plans and suicide attempts.

[b] The AORs represent change in outcome for every 10% increments in independent variables.

Appendix Table A: Multivariable analyses of the association of attitudes towards mental health help-seeking and beliefs about the benefits of mental health treatments at baseline with professional mental health help-seeking and use of mental health treatments over the follow-up in National Comorbidity Survey (1990-1992) and National Comorbidity Survey Follow-up (2001-2003). Analyses are limited to participants who met the criteria for a mood, anxiety or substance disorder during the follow-up.

	Mental health help-seeking during the follow-up								**Prescription psychiatric medication**		**Psychological counseling/ therapy**	
	Any professional help-seeking		**From mental health professionals**		**From general medical professionals**		**From other professionals**					
Baseline attitudes and beliefs	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**
Will go for professional help for serious emotional problem	1.38	1.04-1.83*	1.31	0.98-1.75	1.64	1.07-2.50*	0.91	0.35-2.38	1.75	1.19-2.55**	1.18	0.91-1.53
Comfortable talking about personal problems with a professional	1.24	0.94-1.63	1.32	0.95-1.83	1.24	0.79-1.94	1.54	0.38-6.24	1.26	0.86-1.86	1.25	0.89-1.75
Embarrassed if friends knew about getting professional help	1.04	0.82-1.31	1.12	0.87-1.44	1.01	0.72-1.44	1.42	0.87-2.32	0.99	0.73-1.35	1.10	0.85-1.42
What percent of people who see a professional are helped?[b]	0.01	0.90-1.13	0.99	0.87-1.13	1.05	0.92-1.21	0.86	0.67-1.12	1.05	0.92-1.19	1.00	0.88-1.14
What percent of people who do not get professional help get better? [b]	1.07	0.94-1.21	1.03	0.90-1.17	1.20	0.90-1.39	1.05	0.73-1.51	1.05	0.84-1.32	1.04	0.91-1.18
Difference in percent who get better with professional help vs. without[b]	0.98	0.91-1.06	0.97	0.89-1.07	1.01	0.88-1.17	0.90	0.72-1.14	1.04	0.91-1.19	0.97	0.89-1.06

Note: AOR stands for adjusted odds ratio, CI for confidence interval.

[a] Based on coefficients from logistic regression models in which each attitude/belief variable was entered into a separate model adjusting for sex, race/ethnicity, baseline age, education, employment, family income, health insurance, mood, anxiety or substance disorders, level of interference, suicidal ideations, plans or suicide attempts, professional mental health help-seeking, follow-up psychiatric disorders, interference, suicidal ideation, plans and suicide attempts.

[b] The AORs represent change in outcome for every 10% increments in independent variables.

Appendix Table B: Multivariable analyses of the association of attitudes towards mental health help-seeking and beliefs about the benefits of mental health treatments at baseline with professional mental health help-seeking and use of mental health treatments over the follow-up in National Comorbidity Survey (1990-1992) and National Comorbidity Survey Follow-up (2001-2003). Analyses are limited to participants who did not meet the criteria for a mood, anxiety or substance disorder during the follow-up.

	Mental health help-seeking during the follow-up								**Prescription psychiatric medication**		**Psychological counseling/ therapy**	
	Any professional help-seeking		**From mental health professionals**		**From general medical professionals**		**From other professionals**					
Baseline attitudes and beliefs	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**	**AOR[a]**	**99% CI**
Will go for professional help for serious emotional problem	1.21	0.99-1.48	1.17	0.90-1.51	1.14	0.94-1.39	1.33	0.89-1.98	1.21	1.01-1.46*	1.20	0.95-1.52
Comfortable talking about personal problems with a professional	1.21	1.00-1.46	1.20	0.96-1.50	1.12	0.92-1.37	1.17	0.80-1.70	1.24	1.03-1.50*	1.19	0.96-1.48
Embarrassed if friends knew about getting professional help	1.03	0.87-1.22	1.05	0.90-1.22	0.94	0.81-1.10	1.04	0.79-1.39	1.03	0.87-1.21	1.04	0.85-1.27
What percent of people who see a professional are helped?[b]	0.97	0.89-1.05	0.99	0.91-1.07	0.94	0.86-1.04	1.02	0.90-1.15	0.94	0.87-1.03	0.97	0.89-1.06
What percent of people who do not get professional help get better? [b]	1.02	0.94-1.11	0.98	0.89-1.07	1.04	0.94-1.14	1.01	0.88-1.16	1.00	0.93-1.08	0.98	0.88-1.08
Difference in percent who get better with professional help vs. without[b]	0.97	0.90-1.04	1.01	0.95-1.08	0.94	0.88-1.01	0.99	0.91-1.09	0.95	0.90-1.02	1.00	0.92-1.08

Note: AOR stands for adjusted odds ratio, CI for confidence interval.

[a] Based on coefficients from logistic regression models in which each attitude/belief variable was entered into a separate model adjusting for sex, race/ethnicity, baseline age, education, employment, family income, health insurance, mood, anxiety or substance disorders, level of interference, suicidal ideations, plans or suicide attempts, professional mental health help-seeking, follow-up psychiatric disorders, interference, suicidal ideation, plans and suicide attempts.

[b] The AORs represent change in outcome for every 10% increments in independent variables.