Association Between Severity of Depression and Self-Perceived Cognitive Difficulties Among Full-Time Employees

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ABSTRACT

Objective: To assess the relationship between self-perceived deficits in cognition and severity of depression reported by individuals in full-time employment.

Method: Individuals ≥ 18 years of age employed full-time with diagnosed depression excluding bipolar disorder (participants had to be told by a doctor that they had depression based on *DSM-IV* criteria) completed a 25-minute Web-based survey in February 2010 (study population identified by Harris Interactive, Rochester, New York). The survey used the Perceived Deficits Questionnaire (PDQ) to assess self-perceived cognitive impairment and the 9-item Patient Health Questionnaire (PHQ-9) to assess depression severity. The 20-question PDQ was used to assess self-perceived cognitive difficulties within the domains of prospective memory, retrospective memory, attention/concentration, and planning/organization (range, 0–20: higher scores indicate greater impairment). Subjects answered how often they experienced such difficulties during the previous 4 weeks (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = almost always). The scale ranges from 0–20 for each of the 4 subscales, with higher scores indicating greater cognitive impairment. The impact of depression on PDQ scores was assessed using a trend test based on an analysis of covariance controlling for potential confounders.

Results: Subjects (N = 1,051) (58% women) had a mean ± SD age of 47 ± 12 years; 38% held professional employment. PHQ-9 scores indicated that 423 employees (40.3%) had no depressive symptoms at the time of the survey, 319 (30.4%) had mild depression, 166 (15.8%) had moderate depression, 82 (7.8%) had moderately severe depression, and 61 (5.8%) had severe depression. Perceived cognitive functioning worsened with increasing severity of depression symptoms ($P < .0001$) on the basis of PDQ scores. On the basis of responses to the PDQ, in the current study, most impairment was seen in the attention/concentration and planning/organization subscales in severely depressed subjects (12.2 for both) compared with those with no depressive symptoms (4.4 and 3.5, respectively), indicating more cognitive impairment in the severely depressed subjects compared to the subjects with no depression.

Conclusions: In currently employed individuals, self-perceived cognitive dysfunction worsened with increasing severity of depressive symptoms. This association was independent of antidepressant use. The greatest impairment in self-perceived cognition was observed in the planning/organization and attention/concentration subscales.

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Depression is a common chronic condition in the United States. The 12-month prevalence of major depressive disorder has been estimated at 6.7% of the US adult population.[1] Depression also represents a significant economic burden from an employer standpoint.[2–4] The estimated workplace cost of depression for employers was $51.5 billion in 2000, with approximately 30% due to reduced productivity while at work (referred to as "presenteeism") and the remainder attributed to "absenteeism" (ie, days missed from work due to depression).[3] Regarding presenteeism, many distinct facets of job performance, including those categorized as mental-interpersonal, time management, and output tasks, have been shown to be impeded by underlying depression.[5–7]

Cognitive difficulties constitute 1 of 9 different criteria for an episode of major depressive disorder per the diagnostic classification proposed by the *DSM-IV*. Different cognitive domains may be impaired in depression. These domains can include attention, memory, psychomotor speed,[8,9] and executive functions, defined as complex cognitive processing requiring the coordination of several cognitive subprocesses to achieve a particular goal.[10] Cognitive impairments may translate to limitations in the workplace, such as reduced productivity, increased work errors, increased risk of injury, inability to meet required deadlines, interpersonal conflicts, or reduced ability to cope with stressful situations. As an example, health care workers with depression pose an increased risk for the following safety issues: impaired clinical judgment, clinical errors, or unsafe administration of drugs.[11] In a survey of a Canadian working population (estimated 489,000), almost 4% of subjects reported an episode of depression in the previous 12 months; of these, 79% reported that depressive symptoms interfered at least to some degree with their ability to work.[12] These workers reported an average of 32 days in the previous year that they were unable to work or carry out normal activities. Associations have also been noted with depression and higher rates of unemployment.[6]

It may be assumed that such underlying cognitive deficits are largely responsible for the reduced work productivity described by individuals with depression.[5–7] However, published studies involving cognitive testing in depression have yielded ambiguous results. The literature suggests that there are impairments in some cognitive domains but not others, but results vary between studies.[9,13–24]

In patients with multiple sclerosis, Lovera et al[25] established a positive correlation between depression and self-perceived cognitive dysfunction. More specifically, they found a significant correlation between scores representing self-perceived cognition on the Perceived Deficits Questionnaire (PDQ), a component of the Multiple Sclerosis Quality

Clinical Points

- Depression is associated with cognitive impairments that may impact work productivity.
- Current evidence supports increasing cognitive dysfunction with increasing severity of depressive symptoms.

of Life Inventory, and depression severity as measured by the Beck Depression Inventory–Amended ($r = 0.42$; 95% CI, 0.15–0.62; $P = .003$).[25] However, no significant correlations were found between PDQ scores and cognitive dysfunction, which was measured by 2 neuropsychological tests (the Paced Auditory Serial Addition Test and the California Verbal Learning Test, second edition).[25] These results suggest that self-perceived cognitive dysfunction may be a reflection of depression in patients with multiple sclerosis. The PDQ may therefore be measuring cognitive difficulties associated with depression, and, since this was a survey, a patient-reported measure of cognitive dysfunction was used.[25] If these findings were applied to the broader population with depression, a correlation could exist between impaired work productivity in depressed employees and self-perceptions of cognitive difficulties (ie, prospective and retrospective memory, attention, concentration, planning and organization).

While depression has been shown to impact many facets of job performance,[5,7] the association between depressive severity and self-perceived cognitive dysfunction, specifically among employed individuals, has not been well established. Therefore, the goal of the current cross-sectional, observational study was to assess the relationship between self-perceived deficits in cognition and symptom severity in US employees with depression.

METHOD

Study Population

The population for this study was identified by Harris Interactive (Rochester, New York), a market research company with access to a patient clearinghouse. A minimum threshold for sample size was set a priori at 1,500 to assure an adequate number of completed surveys. Computer-based surveys were administered in February 2010 via a secure Web server to full-time employed persons who reported a clinical diagnosis of depression (participants had to be told by a doctor that they had depression based on *DSM-IV* criteria). Screening questions were used to ensure that subjects met the following inclusion criteria: (1) at least 18 years of age, (2) diagnosed as having an existing depressive episode or confirmed by a physician as having had depression within the 12 months prior to the survey, and (3) currently employed in a capacity in which money was received for worked hours. Both individuals receiving current antidepressant therapy and those not receiving therapy were eligible for inclusion. Those with bipolar disorder were excluded. To be included in the analysis population, subjects were required to respond affirmatively to the question, "Are you working a full-time paying job?"

Study Design and Survey Instrument

This cross-sectional, nonexperimental, observational study used a self-administered Web-based survey (approximate time for completion: 25 minutes) to assess perceived cognitive deficits in full-time employees with depression. The survey included 2 validated scales that measured depression severity and cognition. The survey questions were worded exactly as written in the validated tool. Supplemental questions were added to collect demographic information, as well as information on medication(s) that individuals were taking at the time of the survey.

Two validated scales were included in the survey: the 9-item Patient Health Questionnaire (PHQ-9),[26,27] which was used to determine the level of depression reported by respondents at the time of the survey, and the PDQ,[23] which was used to assess self-perceived cognitive impairment. The PHQ-9 is a common tool used by primary care clinicians in diagnosing and assessing severity of depressive symptoms and in selecting and monitoring treatment.[26,27] The PHQ-9 was used to assess depression severity with 9 questions referring to symptoms over the previous 2 weeks. On the basis of subject response (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day), a total score ranging from 0–27 was obtained, wherein higher scores indicate increased severity of depression. PHQ-9 scores of 5, 10, 15, and 20 represent the lower limits of mild, moderate, moderately severe, and severe depression, respectively.[27] The 20-question PDQ[23] was used to assess self-perceived cognitive difficulties within the domains of prospective memory, retrospective memory, attention/concentration, and planning/organization. Subjects answered how often they experienced such difficulties during the previous 4 weeks (0 = never, 1 = rarely, 2 = sometimes, 3 = often, 4 = almost always). The scale ranges from 0–20 for each of the 4 subscales, with higher scores indicating greater cognitive impairment.

Statistical Analyses

Descriptive statistics (mean and standard deviation) were performed on the study sample, including demographics (eg, age, gender, and race), type of employment, level of education, and use of antidepressants. The impact of level of depression according to the PHQ-9 on self-perceived cognitive impairment measured by the PDQ scores was assessed using analysis of covariance, controlling for age, gender, income, marital status, level of education, smoking status, antidepressant use, and employee category (ie, clerical and administrative support, executive, operator or laborer, precision production and crafts worker, professional, sales, service, and technical support) as covariates, with age as a continuous variable and income, marital status, level of education, smoking status, antidepressant use,

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and employee category as categorical variables. Various subgroup analyses were performed on the basis of age (age > 55 and ≤ 55 years), gender, use of antidepressants (users vs nonusers of antidepressants), and type of employment after controlling for confounding due to gender, income, marital status, level of education, smoking status, and employee category as appropriate.

Subjects were stratified by age categorized as > 55 and ≤ 55 years on the basis of a recent report that almost one-quarter (23%) of the US labor force is aged ≥ 55 years. In 2005, however, only 16% of the labor force was aged ≥ 55 years.[28] As such, the proportion of patients over age 55 has been growing in recent years, and it was considered a meaningful distinction to study those over and under that age threshold. Subgroup analysis based on antidepressant usage was performed because it was hypothesized that there may be some differences in those subjects taking antidepressants compared to those who were not. Gender differences were hypothesized owing to women being more often affected by depression. Similarly, employment in different fields may require different levels of cognitive abilities, and it was deemed pertinent to assess if there were any significant differences in the cognitive difficulties experienced by subjects within specific fields.

RESULTS

Demographics

A total of 1,521 full-time employed persons with a diagnosis of depression responded to the Web-based survey. Of these, 470 respondents did not have a full-time paying job, resulting in a final population of 1,051 evaluable subjects. Table 1 shows the study population characteristics. The majority were women (58%) and predominantly white (94.8%), with a mean ± SD age of 47 ± 12 years. Approximately half (49.3%) were married, and over half (58.4%) had a family history of depression. All subjects in the analysis were employed with the following occupations: 38.3% professional; 8.0% executive; 26.2% technical, service, or sales; 22.0% administrative; and 5.5% other. The largest proportion of respondents (41.5%) had an annual income between $50,000 and $99,000. Current use of antidepressant medication was reported by 49.7% of the subjects (n = 522), most of whom (85.4%) had used antidepressant medication for at least 12 months previously (n = 446), followed by 4 to 6 months (n = 25, 4.8%), 7 to 12 months (n = 24, 4.6%), 2 to 3 months (n = 15, 2.9%), and ≤ 1 month (n = 12, 2.3%).

Level of Depression

Although all subjects reported having a diagnosis of depression in the past 12 months based on the PHQ-9 responses, only 628 subjects (59.8%) were identified as having any depressive symptoms at the time of the survey (ie, PHQ-9 score ≥ 5). On the basis of total scores on the PHQ-9, respondents' depressive symptoms were classified as none (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (≥ 20). PHQ-9 scores indicated that 423 employees (40.3%) had no depressive symptoms at the time of the survey, 319 (30.4%) had mild depression, 166 (15.8%) had moderate depression, 82 (7.8%) had moderately severe depression, and 61 (5.8%) had severe depression (Figure 1). Of subjects reporting any level of depressive symptoms (ie, 628 respondents), most had either a mild (50.8%) or moderate (26.4%) level of depression. Of the 522 respondents reporting current use of antidepressant medication, 325 reported symptoms of depression at the time of the survey (based on PHQ-9 results). Of these 325 respondents, most used antidepressant medication for at least 12 months (n = 267, 82.2%), while others used medication for 7 to 12 months (n = 15, 4.6%), 4 to 6 months (n = 20, 6.2%), 2 to 3 months (n = 11, 3.4%), and ≤ 1 month (n = 12, 3.7%).

PDQ Scores by Level of Depression

The mean total PDQ scores for all subjects by level of depression are depicted in Figure 2. The mean PDQ score for severely depressed subjects was significantly higher than that for subjects with no depressive symptoms (42.5 vs 15.0, $P < .0001$). PDQ scores showed similar statistically significant differences in subjects with mild (23.8 vs 15.0, $P < .0001$), moderate (30.5 vs 15.0, $P < .0001$), and moderately severe (35.7 vs 15.0, $P < .0001$) depressive symptoms when compared to subjects with no depressive symptoms, respectively. Increased severity of depression symptoms was associated with worsening perceived cognitive functioning. This association remained even after controlling for age, gender, income, marital status, education, smoking, and antidepressant use.

Mean scores for the PDQ subscales by level of depression are depicted in Figure 3, demonstrating a progressive worsening of cognition with increasing depression severity for each of the 4 subscales. Of the PDQ subscales, attention/concentration (12.2 vs 4.4, $P < .0001$) and planning/organization (12.2 vs 3.5, $P < .0001$) showed the most impairment and generally the greatest difference between severely depressed subjects and those with no depressive symptoms, respectively. The corresponding differences between severely depressed subjects and those with no depressive symptoms for memory-prospective (8.0 vs 3.2, respectively) and memory-retrospective (10.2 vs 3.9, respectively) were also significant ($P < .0001$ for both).

PDQ Scores by Age

The mean total PDQ scores of subjects aged > 55 years were not significantly different from those of subjects ≤ 55 years across various levels of depression (no depressive symptoms: 15.8 vs 14.0, respectively; severely depressed: 45.9 vs 41.2, respectively; $P = .3771$). The mean scores on all 4 PDQ subscales also were not significantly different between the 2 age categories.

PDQ Scores by Gender

The mean total PDQ scores of women were not significantly different from men across various levels of depression (no depressive symptoms: 13.2 vs 12.5, respectively; severely depressed: 39.9 vs 42.8, respectively; $P = .1138$).

Table 1. Study Population Characteristics

Characteristic	No Depressive Symptoms (n = 423)[a]	Mild Depression (n = 319)[a]	Moderate Depression (n = 166)[a]	Moderately Severe Depression (n = 82)[a]	Severe Depression (n = 61)[a]	*P* Value[b]
Age, y						
Total, mean (SD)	49 (12.2)	46 (12.2)	47 (12.3)	44 (12.6)	43 (11.9)	.0001*
18–29, n (%)	51 (12.1)	54 (16.9)	20 (12.1)	17 (20.7)	13 (21.3)	
30–39, n (%)	59 (14.0)	60 (18.8)	38 (22.9)	19 (23.2)	11 (18.0)	
40–49, n (%)	110 (26.0)	83 (26.0)	33 (19.9)	16 (19.5)	21 (34.4)	
50–64, n (%)	169 (40.0)	105 (32.9)	67 (40.4)	28 (34.2)	15 (24.6)	
≥ 65, n (%)	34 (8.0)	17 (5.3)	8 (4.8)	2 (2.4)	1 (1.6)	
Gender, n (%)						
Male	191 (45.2)	134 (42.0)	74 (44.6)	26 (31.7)	23 (37.7)	.0689
Female	232 (54.9)	185 (58.0)	92 (55.4)	56 (68.3)	38 (62.3)	
Region of United States, n (%)						
East	126 (29.8)	72 (22.6)	43 (25.9)	25 (30.5)	12 (19.7)	.2227
Midwest	112 (26.5)	89 (27.9)	48 (28.9)	30 (36.6)	20 (32.8)	
South	98 (23.2)	87 (27.3)	38 (22.9)	16 (19.5)	19 (31.2)	
West	87 (20.6)	71 (22.3)	37 (22.3)	11 (13.4)	10 (16.4)	
Race, n (%)						
White	402 (95.0)	299 (93.7)	158 (95.2)	77 (93.9)	60 (98.4)	.4105
Black	4 (1.0)	6 (1.9)	3 (1.8)	1 (1.2)	1 (1.6)	
Hispanic	3 (0.7)	5 (1.6)	0 (0)	3 (3.7)	0 (0)	
Other	14 (3.3)	9 (2.8)	5 (3.0)	1 (1.2)	0 (0)	
Income (US$ 1,000), n (%)						
< 50,000	114 (26.9)	107 (33.5)	63 (38.0)	30 (36.6)	28 (45.9)	< .0001*
50,000–99,000	171 (40.4)	134 (42.0)	68 (41.0)	31 (37.8)	22 (36.1)	
≥ 100,000	103 (24.4)	57 (17.9)	28 (16.9)	11 (13.4)	4 (6.6)	
Declined to answer	35 (8.3)	21 (6.6)	7 (4.2)	10 (12.2)	7 (11.5)	
Marital status, n (%)						
Married	222 (52.5)	149 (46.7)	74 (44.6)	45 (54.9)	28 (45.9)	.0481*
Divorced	91 (21.5)	54 (16.9)	33 (19.9)	11 (13.4)	10 (16.4)	
Other	108 (25.5)	114 (35.7)	56 (33.7)	26 (31.7)	23 (37.7)	
Declined to answer	2 (0.5)	2 (0.6)	3 (1.8)	0 (0)	0 (0)	
Children, n (%)						
No	207 (48.9)	170 (53.3)	89 (53.6)	43 (52.4)	34 (55.7)	.2183
Yes	216 (51.1)	149 (46.7)	77 (46.4)	39 (47.6)	27 (44.3)	
Education, n (%)						
Some high school or general education diploma	32 (7.6)	26 (8.2)	14 (8.4)	7 (8.5)	6 (9.8)	.0003*
Vocational school or some college	102 (24.1)	72 (22.6)	51 (30.7)	26 (31.7)	25 (41.0)	
College degree	164 (38.8)	145 (45.5)	58 (34.9)	35 (42.7)	26 (42.6)	
Professional or graduate degree	125 (29.6)	76 (23.8)	43 (25.9)	14 (17.1)	4 (6.6)	
Smoker, n (%)						
Current smoker	52 (12.3)	55 (17.2)	27 (16.3)	21 (25.6)	19 (31.2)	< .0001*
Current nonsmoker	371 (87.7)	264 (82.8)	139 (83.7)	61 (74.4)	42 (68.9)	
Alcohol use, n (%)						
Never	133 (31.4)	102 (32.0)	61 (36.8)	33 (40.2)	20 (32.8)	.1460
Sometimes	290 (68.6)	216 (67.7)	105 (63.3)	49 (59.8)	39 (63.9)	
Declined to answer	0 (0)	1 (0.3)	0 (0)	0 (0)	2 (3.3)	
Substance abuse, n (%)						
Yes	46 (10.9)	39 (12.2)	23 (13.9)	11 (13.4)	11 (18.0)	.1038
No	372 (87.9)	275 (86.2)	142 (85.5)	70 (85.4)	50 (82.0)	
Declined to answer	5 (1.2)	5 (1.6)	1 (0.6)	1 (1.2)	0 (0)	
Family history of depression, n (%)						
Yes	242 (57.2)	183 (57.4)	97 (58.4)	52 (63.4)	40 (65.6)	.1801
No	172 (40.7)	131 (41.1)	68 (41.0)	28 (34.2)	20 (32.8)	
Declined to answer	9 (2.1)	5 (1.6)	1 (0.6)	2 (2.4)	1 (1.6)	

[a]Based on total scores on the 9-item Patient Health Questionnaire, respondents' depressive symptoms were classified as none (0–4), mild (5–9), moderate (10–14), moderately severe (15–19), and severe (20–27).
[b]Based on an analysis of variance in a univariate fashion for continuous variables and a χ^2 test for categorical variables.
*Statistically significant ($P < .05$).

PDQ Scores by Employment Category

Additionally, mean total PDQ scores were evaluated by employee category: clerical and administrative support (28.7), executive (29.2), operator or laborer (27.1), precision production and crafts worker (32.6), professional (28.5), sales (29.7), service (30.1), and technical support (30.3). Despite these numerical differences, there was no significant association between employee class and PDQ scores on the basis of the multivariate analysis controlling for all other variables.

PDQ Scores by Use of Antidepressants

The mean total PDQ score for subjects who reported current antidepressant use was not significantly different

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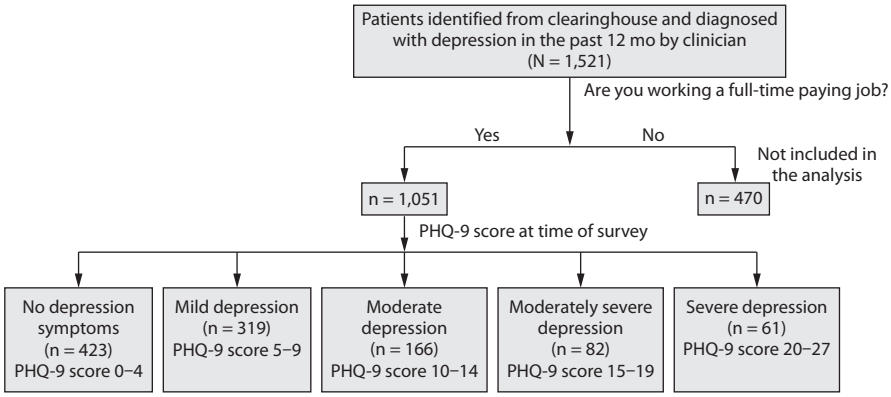
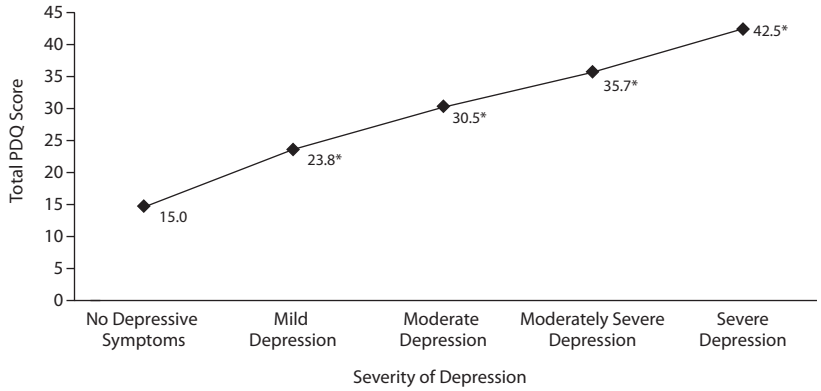
Figure 1. Sample Selection and Level of Depression at Baseline



Abbreviation: PHQ-9=9-item Patient Health Questionnaire.

Figure 2. Perceived Deficits Questionnaire (PDQ) Total Score by Level of Depression[a]



[a]Higher scores indicate greater cognitive impairment.
*$P < .0001$ vs no depressive symptoms.

from the subjects who did not use antidepressants across various levels of depression (no depressive symptoms: 14.0 vs 11.6, respectively; severely depressed: 43.3 vs 38.1, respectively; $P = .4144$) (Figure 4).The mean scores on all PDQ subscales were also not significantly different for the subjects who used antidepressants compared to those who did not use antidepressants.

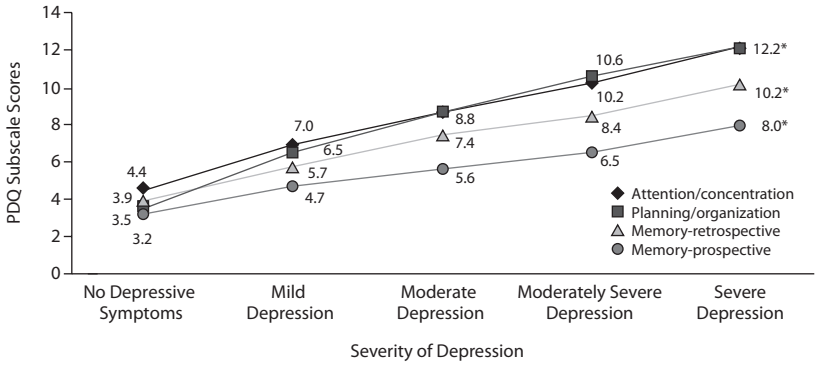
DISCUSSION

This study demonstrated an association between the severity of depression and perceived cognitive impairment in full-time employed individuals. Worsening self-perceived cognitive difficulties were associated with increasing severity of depression as measured by the PDQ. Specifically, each of the different domains of cognitive functioning evaluated using the PDQ (ie, attention/concentration, planning/organization, retrospective memory, and prospective memory) was significantly worse in respondents with progressively more severe depression compared with respondents with no depressive symptoms ($P < .0001$ for all). The impairment was most prominent in the domains involving attention/concentration and planning/organization.

The association of depression with cognitive impairment has been demonstrated in several studies.[9,13,15–17,21,29] Most of the studies have evaluated the association between cognitive outcomes and depression in either adults or young adults[9,13] or in the elderly population. However, there are few robust studies evaluating the association specifically between depression severity and cognitive function in full-time employed individuals. The findings from the current analysis support a recent meta-analysis on this topic,[30] which was limited by the number of studies that met the inclusion criteria. Nevertheless, McDermott and Ebmeier[30] reported that negative correlations were found between depression severity and cognitive function in the domains of episodic memory, executive function, and processing speed (correlation coefficient [95% CI]: −0.31 [−0.46 to −0.13], −0.32 [−0.41 to −0.23], −0.16 [−0.31 to −0.01], respectively), but not in semantic memory or visuospatial memory. Specifically, increased depression severity was significantly associated with reduced cognitive performance across these domains.[30]

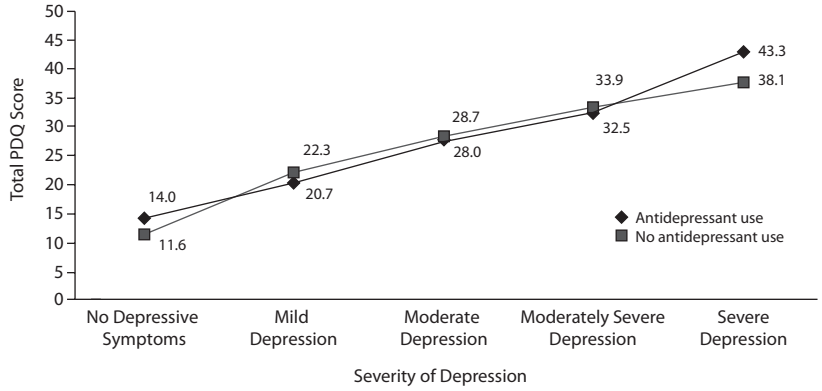
Furthermore, research has evaluated the association between depression and subjective and objective cognitive

Figure 3. Perceived Deficits Questionnaire (PDQ) Subscale Scores by Level of Depression[a]



[a]Higher scores indicate greater cognitive impairment.
*$P < .0001$ vs no depressive symptoms.

Figure 4. Perceived Deficits Questionnaire (PDQ) Total Score by Level of Depression and Antidepressant Use[a]



[a]Higher scores indicate greater cognitive impairment.

difficulties. Discrepancies have been reported between subjectively rated cognitive performance and objective neuropsychological testing. In the analysis by Farrin et al,[31] subjective reports of cognitive failures were strongly related to mood, while only weakly related to objective performance. The current analysis assessed self-perceived cognitive impairment among respondents with depression. It is assumed that the cognitive impairment observed in individuals with depression may translate into presenteeism in the workplace. Studies have demonstrated work performance deficits due to depression in areas including task focus,[7] mental-interpersonal tasks, and time management.[5] In the current study, on the basis of responder self-assessment, it cannot be determined if the cognitive difficulties were a result of depression symptoms or the use of antidepressants. While it is beyond the scope of the present analysis to determine causality, future research on this topic is warranted, since many questions remain unanswered regarding the association between cognitive dysfunction and depression.

The progressive worsening of self-perceived cognitive function with increasing depression severity demonstrated in this study was independent of age, gender, or antidepressant use. However, this in no way should be taken to mean that cognitive function is not improved in patients taking antidepressants, as the cross-sectional nature of the study does not allow for such conclusions. Approximately half of the sample population reported to be taking an antidepressant at the time of the survey, and this aspect of the study warrants further investigation. While it has been demonstrated in the elderly that antidepressant therapy results in improved cognition,[32,33] other studies have demonstrated a deleterious effect.[34,35] A comprehensive review of depression and cognitive impairment in young adults showed that the results varied greatly across studies.[13] This difference was attributed to the variability in tests and scales used to measure cognitive impairment, as well as an inadequate control of the effect of confounders such as illness status, comorbid mental conditions, and medication use. As such, the exact effect of antidepressants on cognitive difficulties is hard to delineate.

Limitations

The study was based on self-reported data from respondents who completed the Web-based survey and, as such, is subject

to recall bias. In an effort to reduce this bias, the recall period was limited to 4 weeks. The study population was recruited from a patient clearinghouse and may not be representative of employed persons with depression. Additionally, "full-time" is assumed to be 40 hours/wk, but this detail was not included in the survey question, so we cannot further define full-time. While potential confounders such as age, gender, income, marital status, level of education, smoking status, antidepressant use, and employee category were controlled for, other variables were not collected, such as comorbid medical conditions, the number of hours worked per week, and baseline cognition levels; thus, the confounding effect of these factors cannot be determined. Due to the cross-sectional design, any information on baseline comorbidities would have to be coupled with the severity and the duration in order to make for meaningful confounding adjustment. Also, the severity of depression might be correlated with the comorbidity burden and thereby account for some of the confounding.

CONCLUSIONS

In currently employed persons with depression, self-perceived cognitive dysfunction progressively worsened with increasing severity of depression, and this association was independent of antidepressant use. The greatest impairment in self-perceived cognition was observed in the planning/organization and attention/concentration subscales. These impairments may negatively impact work productivity for individuals with depression. Further research is necessary to explore these impairments in cognition among employed persons with depression, as well as the role of antidepressant therapy, as it may relate to improvements in cognitive difficulties, especially as experienced by working individuals with depression. Of interest is the impact of antidepressant medication adherence on cognitive performance in the workplace.

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Additional information: Requests for access to the patient clearinghouse are made to Harris Interactive. See http://www.harrisinteractive.com/ for information.

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