Pathways to a Healthy Bernalillo County

Behavioral Health Pathway Return on Investment Analysis

The Behavioral Health pathway connects clients to an affordable source of regular behavioral health care. Although it typically increases utilization of behavioral health services, completion of the Behavioral Health pathway likely generates substantial health care cost savings. Exit interviews with clients who completed the pathway show reduced utilization of emergency department (ED) services. In addition, addressing the behavioral health needs of Pathways clients yields a positive return on investment by improving quality of life, increasing employment and workplace productivity, improving social and family interactions, and reducing costs to the public safety and criminal justice systems.

Depression is the most common behavioral health issue reported by Pathways participants. Depression and anxiety are leading causes of disability for working age Americans.[1] [2] In the majority of cases, behavioral health conditions respond to treatment.[3] However, effective, consistent treatment can be difficult to obtain. Sixty-one percent of Pathways clients who pursued the Behavioral Health pathway said they been unable to access behavioral health services they needed in the past year.

Behavioral health disorders are leading causes of disability, lost productivity, and health care expenditure in the United States.[4] Individuals with mental illness and/or substance abuse disorders have worse health outcomes, utilize more health services, and die younger than the general population.[5] [6] They also account for a disproportionately large share of health care costs.

Most of the health care costs attributable to behavioral health are for treatment of non-behavioral health conditions.[7] Research shows that the cost impacts are greatest for patients with multiple chronic conditions. Disorders like depression and anxiety complicate treatment for co-morbid illnesses and may contribute to over-use or inefficient use of health care resources.[8]

> ***Even a small decrease in the medical care costs attributable to behavioral health problems would generate substantial cost savings. These savings would likely exceed the cost of administering the Behavioral Health pathway.***

Research also suggests that the cost of successful behavioral health treatment is offset, to some degree, by other health care cost savings and workplace productivity gains. However, variation in the characteristics and effectiveness of different behavioral health treatments make it difficult to assess how treating behavioral health conditions impacts patients' overall health care costs. Therefore, although it is likely that effective behavioral health treatment reduces overall health care cost, the size of the effect has not yet been rigorously quantified.

The Behavioral Health pathway

To support clients who choose the Behavioral Health pathway community health navigators:

- ✓ Refer clients to behavioral health providers,

- ✓ Initiate financial assistance and/or payment plans,
- ✓ Help clients schedule appointments, and
- ✓ Confirm that the client attended at least three appointments with a behavioral health specialist.

To complete the pathway, navigators confirm that clients:

- ✓ Are satisfied with the behavioral health services they received,
- ✓ Feel that their mental and physical health have improved, and
- ✓ Have plans for continuing Behavioral Health treatment after completion of the Pathways program.

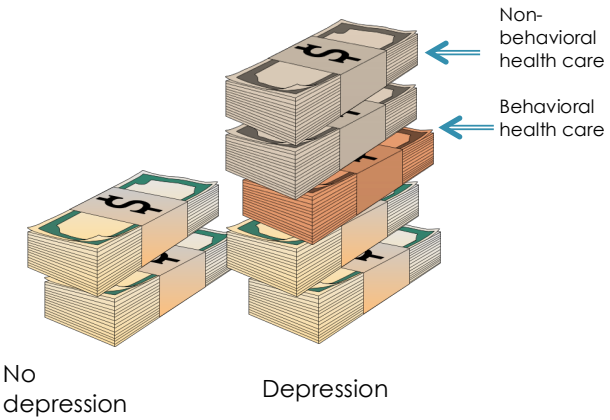
Behavioral Health pathway clients

The Behavioral Health pathway has been attempted by 928 Pathways clients and completed by 532 (57%). Factors that distinguish behavioral health clients from the general Pathways population:

- More likely to be female: Eighty-three percent of Behavioral Health pathway completers are female compared to 73 percent of Pathways clients overall.
- More likely to be linguistically isolated: Sixty-nine percent of behavioral health completers communicate primarily or entirely in Spanish. Seventy-one percent have difficulty reading English (compared to 59% of all Pathways clients) and 67 percent have difficulty speaking and/or understanding English (compared to 55% of all Pathways clients).
- More likely to experience domestic violence: Navigator notes indicate that at least 29 percent of clients who completed the Behavioral Health pathway were currently experiencing or fleeing domestic violence. Sixty-two percent of clients who completed the pathway and 39 percent of all Pathways clients reported feeling afraid of their partner. Behavioral Health clients were also significantly more likely than other clients to report having been abused by a partner.[i]
- Less likely to report substance misuse - Although substance abuse and other behavioral health issues often co-occur, clients who complete the Behavioral Health pathway were actually less likely than other Pathways clients to report having difficulties due to substance use.[ii] Addiction is a behavioral health disorder, but in Pathways, it is addressed via a separate Substance Abuse pathway.

Forty-seven Behavioral Health completers took the Pathways exit survey. Sixty-two percent of exit interviewees who completed the Behavioral Health pathway reported that their overall health had improved since their participation in Pathways began.

Individual health care expenditures for patients with and without depression



[i] Sixty one percent of behavioral health clients and 38 percent of other Pathways clients said they had been abused by a partner. The difference is statistically significant at the .05 level.
[ii] Thirty percent of behavioral health clients and 35 percent of other Pathways clients said substance use had created difficulties in their lives. The difference is statistically significant at the .05 level.

Behavioral health costs

Many chronic medical conditions, including diabetes, heart disease, and asthma, are accompanied by depression and anxiety.[9] Untreated, behavioral health conditions hamper recovery and diminish quality of life for patients with other disorders.[10] [11] Depression can complicate medical treatment, reduce a patient's capacity for self-care, and undermine adherence to treatment plans and medication regimes.[12] Major depression more than doubles the prevalence of functional disability among patients with common chronic conditions.[13] Anxiety disorders, which often co-occur with depression,[14] further increase the likelihood of disability.[15] [16] Upon entry to the Pathways program, 96 percent of Behavioral Health clients said that feelings of sadness or depression impeded their ability to carry out day-to-day activities.

In 2010, depression[iii] cost the US economy an estimated $210.5 billion, almost half of which was incurred in the workplace in the form of absenteeism and reduced productivity. Increased use of health care accounted for 34 percent of depression's total costs. Patients with depression have average annual health care costs roughly 240 percent higher than those of non-depressed patients.[17] [18]

Figure 1 Costs of Depression in the US, 2010

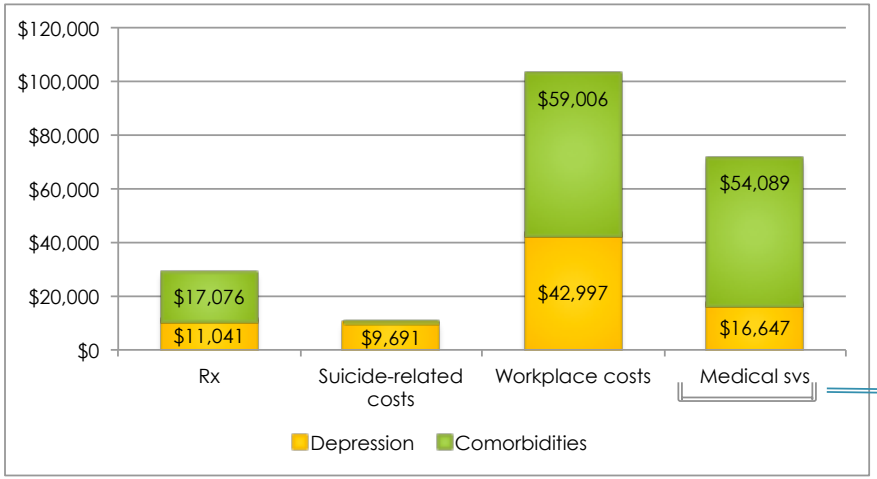
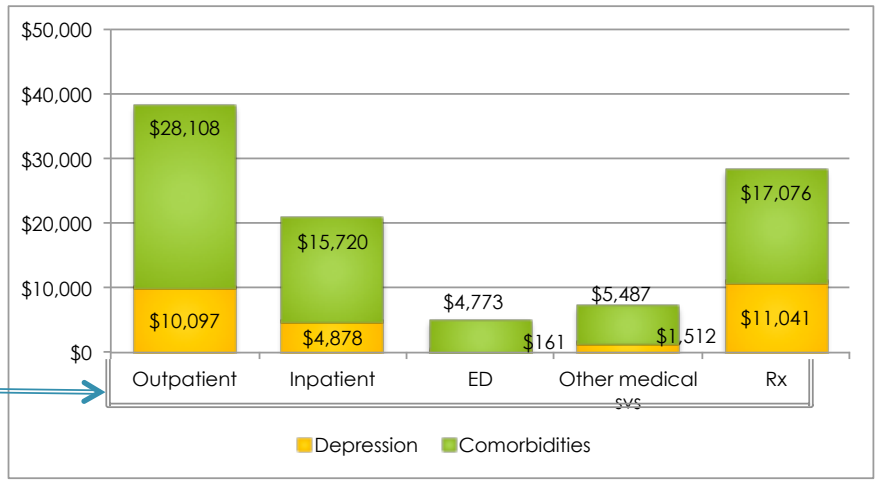


Figure 2 Medical Costs of Depression in the US, 2010



Patients with behavioral health problems, including depression and anxiety, use health care differently than other patients.[19] [20] Compared to patients without behavioral health conditions, behavioral health patients have more physician office visits, hospitalizations, and trips to the ED, most of which are for ambulatory sensitive, non-behavioral health concerns. Patients with behavioral health disorders have also been shown to spend a greater proportion of total medical dollars on facility-based services as opposed to office-based professional services.[21]

[iii] Major depressive disorder (MDD), bipolar disorder, and dysthymia

Diabetes and Depression

Fifteen percent of Pathways Behavioral Health clients have been diagnosed with (non-gestational) diabetes at some point. Research suggests a bi-directional relationship between diabetes and depression.[1,2] *Depressed patients are more likely to develop type II diabetes and diabetics are more likely than the general population to experience depression.*[*] *Depressed diabetics demonstrate less control over blood glucose levels*[3] *and have a greater likelihood of complications than diabetics who are not depressed.*

The co-occurrence of the two disorders appears to increase the costs associated with both.[4] *When estimated independently, the incremental costs of depression and diabetes were $2,654 and $2,692 respectively.*[5] *When the two conditions co-occurred, the incremental cost was $6,037, $691 more than the sum of the costs for the conditions individually.*[6] *In another study, depression increased total annual health care expenditures among diabetics by $2000 to $3,000 when depression was unrecognized and asymptomatic and $5,000 when it was symptomatic.*[7]

Medicaid patients with diabetes and depression had more physician office visits, emergency room/inpatient admissions, and more prescriptions compared with patients who had diabetes but were not depressed.[8]

*When compared to patients with neither condition

1 Mezuk B, Eaton WW, Albrecht S, Golden SH. Depression and type 2 diabetes over the lifespan: a meta-analysis. Diabetes Care. 2008 Dec;31(12):2383-90.
2 Boulanger L1, Zhao Y, Foster TS, Fraser K, Bledsoe SL, Russell MW. Impact of comorbid depression or anxiety on patterns of treatment and economic outcomes among patients with diabetic peripheral neuropathic pain. Curr Med Res Opin. 2009 Jul;25(7):1763-73.
3 Richardson LK, Egede LE, Mueller M, Echols CL, Gebregziabher M. Longitudinal effects of depression on glycemic control in veterans with Type 2 diabetes. Gen Hosp Psychiatry. 2008 Nov-Dec;30(6):509-14.
4 de Groot M, Anderson R, Freedland KE, Clouse RE, Lustman PJ. Association ofdepression and diabetes complications: a meta-analysis. Psychosom Med. 2001
5 Boulanger et al. 2009.
6 Egede LE, Bishu KG, Walker RJ, Dismuke CE.2016. Impact of diagnosed depression on health care costs in adults with and without diabetes: United States, 2004-2011. Affect Disord. 2016 May;195:119-26.
7 Egede, L.E., et al. 2016
8 Kalsekar ID, Madhavan SM, Amonkar MM, Scott V, Douglas SM, Makela E.. The effect of depression on health care utilization and costs in patients with type 2 diabetes. Manag Care Interface. 2006 Mar;19(3):39-46.

Even among high cost patients, those with behavioral health problems stand out.[22] High cost patients with behavioral health problems are more likely than other high cost patients to be hospitalized[23] and have a higher overall ratio of facility-based care to office based care. A Canadian study found that the average cost for a "mental health high-cost patient" was roughly 33 percent greater than the average cost for other high-cost patients.[24]

It seems clear that depression and anxiety increase health care costs almost across the board. It follows that effective treatment could decrease health care costs significantly, but isolating and quantifying the impact of behavioral health treatment on total health care costs is more difficult than it appears. Research to date suggests that the benefits of effective treatment outweigh the costs,[25] but the degree to which these benefits are reflected in medical cost savings or increased productivity is not yet known.[26]

There is some evidence that persistent treatment of depression is associated with slower growth in total health care costs for certain patients with chronic comorbid medical conditions.[27] Embedding behavioral health services in primary care practices has been shown to reduce ED use by behavioral health patients,[28] and it has been estimated that 9 to16 percent of total additional spending on co-morbid behavioral health patients may be saved through effective integration of behavioral health and primary care.[29]

Seventeen percent of clients who complete the Behavioral Health pathway also complete the Health Care Home pathway. Navigator notes indicate that a significant number of clients received primary care and behavioral health care at the same location. Exit interviews show reduced utilization of ED services by behavioral health pathway completers, which may reflect one or both of these effects. Upon entry to Pathways, 44 percent reported having received services at the ED *at least* three times in the past year. Upon exit from Pathways, 17 percent reported having used the ED even once since beginning Pathways.[iv]

Pathways clients in general have been shown to incur average annual charges of over $19,250 at University of New Mexico Hospital (UNMH) alone,[30] and it is clear from navigator notes that Pathways clients obtain health care from many sources in addition to UNMH. Assuming that Pathways clients incur two-thirds of their health care costs as UNMH, their per-capita health care charges average $29,175 annually. If, as the research suggests, 59 percent ($17,267) of these costs are in some way attributable to the patients' behavioral health disorders, effective treatment for those disorders should reduce overall health care costs. If, for example, behavioral health treatment reduced the portion of total health care cost attributable to behavioral health problems by 10

[iv] The Pathways program takes an average of 251 days (8.4 months) to complete

percent, total cost savings for clients who have completed the Behavioral Health pathway would be $918,620. Each completed pathway costs the Pathways program roughly $530, so the total cost for the 928 clients who attempted the pathway would be something less than $491,840. Net benefits (benefits minus costs) would be $428,620 and the ratio of benefits to cost would be 1.87 ($1.87 in benefits for every $1 in cost).

Employment/Human Capital

Half of depression's costs are attributable to absenteeism from work and presenteeism while at work (See Figure 1).[31] While these are not direct health care costs, the impact of employment on income and the established relationship between income and health outcomes makes employment impacts relevant to discussions of health and health care costs. Twenty-four percent of clients who completed the Behavioral Health pathway were employed and 22 percent were actively seeking work through the Employment pathway. Depression has a profound impact on employment, job performance, and productivity.[32] Decreasing the severity of depression has been shown to improve workplace performance.[33] In one study, treatment for depression increased productivity by 8.2 percent and reduced absenteeism by 28.4 percent, resulting in cost savings of $2,601 per full-time equivalent employee.[34] In the workplace as in the health care arena, depression exerts the most profound impact when it co-occurs with other chronic conditions. Over half of workplace costs are due to co-morbidities. Income and well-being are inextricably linked, particularly for the impoverished. Thus, if even a small fraction of Behavioral Health pathway completers became employed or remained employed due to completion of the pathway, the benefits to clients and their families will justify Pathways program costs

Conclusion

Even a small decrease in the medical care costs attributable to behavioral health problems would generate cost savings more than sufficient to offset Pathways program costs. The same can be said of employment and workplace costs related to depression. In addition, addressing the behavioral health needs of Pathways clients yields a positive return on investment by improving quality of life, increasing employment and workplace productivity, improving social and family interactions, and reducing costs to the public safety and criminal justice systems.

[1] Paul E. Greenberg, MS, MA; Andree-Anne Fournier, MA; Tammy Sisitsky, MA; Crystal T. Pike, MBA; and Ronald C. Kessler, PhD. The Economic Burden of Adults With Major Depressive Disorder in the United States (2005 and 2010). J Clin Psychiatry 2015;76(2):155–162. http://www.psychiatrist.com/jcp/article/Pages/2015/v76n02/v76n0204.aspx

[2] Bereza BG, Machado M, Einarson TR. Systematic review and quality assessment of economic evaluations and quality-of-life studies related to generalized anxiety disorder. Clin Ther. 2009 Jun;31(6):1279-308.

[3] National Council for Behavioral Health. The Business Case for Effective Mental Health Treatment. http://www.thenationalcouncil.org/wp-content/uploads/2015/01/14_Business-Case_Mental-Health.pdf

U.S. Department of Health and Human Services. The invisible disease: depression. 2000. In Ohio Department of Mental Health. Mental Health: The Business Case. 2005

[4] Marcus SC, Olfson M. National trends in the treatment for depression from 1998 to 2007. Arch Gen Psychiatry. 2010;67(12):1265–1273.

[5] de Oliveira C, Cheng J, Vigod S, Rehm J, Kurdyak. (2016) Patients With High Mental Health Costs Incur Over 30 Percent More Costs Than Other High-Cost Patients. P.Health Aff (Millwood). Jan;35(1):36-43.

[6] Clarke RM, Jeffrey J, Grossman M, Strouse T, Gitlin M, Skootsky SA. (2016) Delivering On Accountable Care: Lessons From A Behavioral Health Program To Improve Access And Outcomes. Health Aff (Millwood). 2016 Aug 1;35(8):1487-93.

[7] Hoffman, D. L., Dukes, E. M. and Wittchen, H.-U. (2008), Human and economic burden of generalized anxiety disorder. Depress. Anxiety, 25: 72–90. doi:10.1002/da.20257

[8] Yoon J, Yano EM, Altman L, Cordasco KM, Stockdale SE, Chow A, Barnett PG, Rubenstein LV. (2012) Reducing costs of acute care for ambulatory care-sensitive medical conditions: the central roles of comorbid mental illness. Med Care. Aug;50(8):705-13.

[9] Melek, Stephen P. Norris, Douglas T. Paulus, Jordan. (2014, April) Economic Impact of Integrated Medical-Behavioral Healthcare. Implications for Psychiatry Milliman American Psychiatric Association Report

[10] Boulanger L1, Zhao Y, Foster TS, Fraser K, Bledsoe SL, Russell MW. 2009. Impact of comorbid depression or anxiety on patterns of treatment and economic outcomes among patients with diabetic peripheral neuropathic pain. Curr Med Res Opin. 2009 Jul;25(7):1763-73. doi: 10.1185/03007990902997309.

[11] Gonzalez, J., Safren, S., Delahanty, L., Cagliero, E., Wexler, D., Meigs, J., & Grant, R. (2008). Symptoms of Depression Prospectively Predict Poorer Self-Care in Patients with Type 2 Diabetes. Diabetic Medicine : A Journal of the British Diabetic Association, 25(9), 1102–1107. http://doi.org/10.1111/j.1464-5491.2008.02535.x

[12] Gonzalez, J., Safren, S., Delahanty, L., Cagliero, E., Wexler, D., Meigs, J., & Grant, R. (2008). Symptoms of Depression Prospectively Predict Poorer Self-Care in Patients with Type 2 Diabetes. Diabetic Medicine : A Journal of the British Diabetic Association, 25(9), 1102–1107. http://doi.org/10.1111/j.1464-5491.2008.02535.x

[13] Schmitz N1, Wang J, Malla A, Lesage A. 2007.nPsychosom Med. 2007 May;69(4):332-8. Epub 2007 Apr 30. Joint effect of depression and chronic conditions on disability: results from a population-based study.

[14] Hirschfeld, R. M. A. (2001). The Comorbidity of Major Depression and Anxiety Disorders: Recognition and Management in Primary Care. Primary Care Companion to The Journal of Clinical Psychiatry, 3(6), 244–254.

[15] Stein MB, Roy-Byrne PP, Craske MG, Bystritsky A, Sullivan G, Pyne JM, et al. (2005) Functional impact and health utility of anxiety disorders in primary care outpatients. Med Care.;43:1164–70.

[16] Hendriks, S.M., Spijker,J., Licht, C.M.M., Hardeveld, F., de Graaf, R., Batelaan, N.M., Penninx, B.W. J. H., and Beekman, A.T.F. (2016) BMC Psychiatry 201616:248
DOI: 10.1186/s12888-016-0946-y© 2016

[17] Melek, Stephen P. Norris, Douglas T. Paulus, Jordan. (2014, April) Economic Impact of Integrated Medical-Behavioral Healthcare. Implications for Psychiatry Milliman American Psychiatric Association Report

[18] Paul E. Greenberg, MS, MA; Andree-Anne Fournier, MA; Tammy Sisitsky, MA; Crystal T. Pike, MBA; and Ronald C. Kessler, PhD. The Economic Burden of Adults With Major Depressive Disorder in the United States (2005 and 2010). J Clin Psychiatry 2015;76(2):155–162. http://www.psychiatrist.com/jcp/article/Pages/2015/v76n02/v76n0204.aspx
[19] How Much Do Mental Health and Substance Use/Addiction Affect Use of General Medical Services? Extent of Use, Reason for Use, and Associated Costs Can J Psychiatry August 2016 0:20160706743716664884v1-706743716664884
[20] Schmitz N1, Wang J, Malla A, Lesage A. (2007). Joint effect of depression and chronic conditions on disability: results from a population-based study. Psychosom Med. 2007 May;69(4):332-8.
[21] Economic Impact of Integrated Medical-Behavioral Healthcare. Milliman, Inc. April 2014.
[22] Hensel, JM, Taylor, VH, Fung, K, Vigod, SN. (2016). Rates of Mental Illness and Addiction among High-Cost Users of Medical Services in Ontario. Can J Psychiatry. Jun;61(6):358-66. doi: 10.1177/0706743716644764.
[23]de Oliveira C, Cheng J, Vigod S, Rehm J, Kurdyak. (2016) Patients With High Mental Health Costs Incur Over 30 Percent More Costs Than Other High-Cost Patients. P.Health Aff (Millwood). Jan;35(1):36-43.
[24] de Oliveira C, Cheng J, Vigod S, Rehm J, Kurdyak. (2016) Patients With High Mental Health Costs Incur Over 30 Percent More Costs Than Other High-Cost Patients. P.Health Aff (Millwood). Jan;35(1):36-43.
[25] Cost-Effectiveness and Net Benefit of Enhanced Treatment of Depression for Older Adults With Diabetes and Depression
Wayne Katon, Jürgen Unützer, Ming-Yu Fan, John W. Williams, Michael Schoenbaum, Elizabeth H.B. Lin, Enid M. Hunkeler
Diabetes Care Feb 2006, 29 (2) 265-270; DOI: 10.2337/diacare.29.02.06.dc05-1572
[26] Donohue JM, Pincus HA. Reducing the societal burden of depression: a review of economic costs, quality of care and effects of treatment. Pharmacoeconomics. 2007;25(1):7-24. Review. PubMed PMID: 17192115.
[27] Steve Melek, Michael Halford and Daniel Perlman June 2012Depression treatment: The impact of treatment persistence on total health care costs. Milliman Research Report. Retrieved from: http://www.milliman.com/uploadedFiles/insight/health-published/pdfs/depression-treatment.pdf
[28] Clarke RM, Jeffrey J, Grossman M, Strouse T, Gitlin M, Skootsky SA. (2016) Delivering On Accountable Care: Lessons From A Behavioral Health Program To Improve Access And Outcomes. Health Aff (Millwood). 2016 Aug 1;35(8):1487-93.
[29] Melek, Stephen P. Norris, Douglas T. Paulus, Jordan. (2014, April) Economic Impact of Integrated Medical-Behavioral Healthcare. Implications for Psychiatry Milliman American Psychiatric Association Report
[30] Odufuwa, O., Guerin, and P.,Torres, S. (2015, October). Pathways to a Healthy Bernalillo County Program– A Cost Study. University of New Mexico Institute for Social Research
[31] Paul E. Greenberg, MS, MA; Andree-Anne Fournier, MA; Tammy Sisitsky, MA; Crystal T. Pike, MBA; and Ronald C. Kessler, PhD. The Economic Burden of Adults With Major Depressive Disorder in the United States (2005 and 2010). J Clin Psychiatry 2015;76(2):155–162.
[32] Egede LE. Diabetes, major depression, and functional disability among U.S. adults. Diabetes Care. 2004 Feb;27(2):421-8.
[33] Wang, P. S., Simon, G., & Kessler, R. C. (2003). The economic burden of depression and the cost-effectiveness of treatment. International Journal Of Methods In Psychiatric Research, 12(1), 22.
[34] Rost K. Smith JL. Dickinson M. The effect of improving primary care depression management on employee absenteeism and productivity: A randomized trial. Medical Care. 2004; 42(12): 1202-1210.