

## Cognitive behavioral therapy (CBT) for adult depression

### Adult Mental Health: Depression

Benefit-cost estimates updated December 2019. Literature review updated September 2016.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our [Technical Documentation](#).

Program Description: Cognitive-behavioral therapies include various components, such as cognitive restructuring, behavioral activation, emotion regulation, communication skills, and problem-solving. Treatment is goal-oriented and generally of limited duration. Most commonly, treatments in this review provided 10-20 therapeutic hours per client in an individual or group modality.

### Benefit-Cost Summary Statistics Per Participant

#### Benefits to:

Taxpayers	\$8,116	Benefit to cost ratio	\$49.89
Participants	\$15,418	Benefits minus costs	\$25,928
Others	\$1,820	Chance the program will produce	
Indirect	\$1,104	benefits greater than the costs	100 %
<b>Total benefits</b>	<b>\$26,459</b>		
<b>Net program cost</b>	<b>(\$530)</b>		
<b>Benefits minus cost</b>	<b>\$25,928</b>		

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2018). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our [Technical Documentation](#).

### Meta-Analysis of Program Effects

Outcomes measured	Treatment age	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
				First time ES is estimated			Second time ES is estimated			ES	p-value
				ES	SE	Age	ES	SE	Age		
Major depressive disorder	39	64	1489	-0.481	0.044	40	-0.250	0.053	42	-0.733	0.001

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our [Technical Documentation](#).

### Detailed Monetary Benefit Estimates Per Participant

Affected outcome:	Resulting benefits: <sup>1</sup>	Benefits accrue to:				
		Taxpayers	Participants	Others <sup>2</sup>	Indirect <sup>3</sup>	Total
Major depressive disorder	Labor market earnings associated with major depression	\$6,336	\$14,882	\$0	\$0	\$21,217
Major depressive disorder	Health care associated with major depression	\$1,764	\$499	\$1,820	\$882	\$4,965
Major depressive disorder	Mortality associated with depression	\$16	\$38	\$0	\$487	\$541
Program cost	Adjustment for deadweight cost of program	\$0	\$0	\$0	(\$265)	(\$265)
<b>Totals</b>		<b>\$8,116</b>	<b>\$15,418</b>	<b>\$1,820</b>	<b>\$1,104</b>	<b>\$26,459</b>

<sup>1</sup>In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

<sup>2</sup>“Others” includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

<sup>3</sup>“Indirect benefits” includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

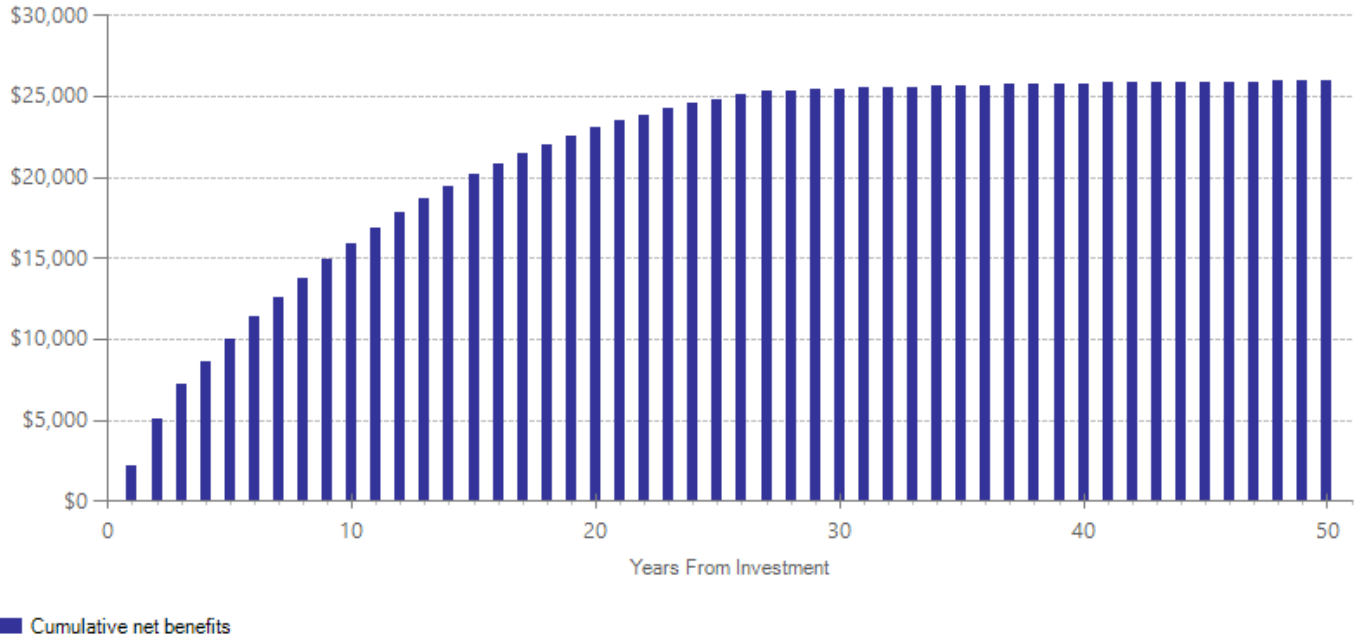
### Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	\$1,231	2014	Present value of net program costs (in 2018 dollars)	(\$530)
Comparison costs	\$672	2008	Cost range (+ or -)	10 %

This therapy typically takes place over 10 to 20 weekly sessions. Per-participant costs are based on therapist time as reported in the studies, multiplied by DSHS reimbursement rates reported in Mercer (2013) Behavioral Health Data Book for the State of Washington For Rates Effective January 1, 2014.

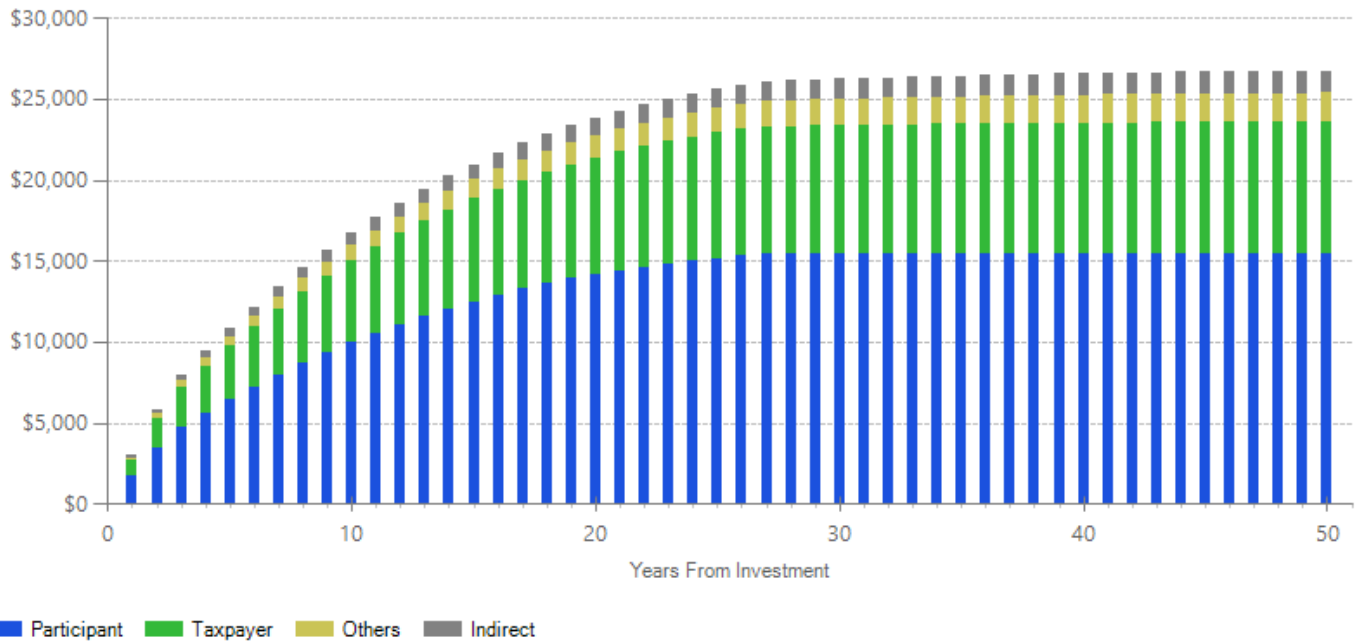
The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our [Technical Documentation](#).

## Benefits Minus Costs Over Time (Cumulative Discounted Dollars)

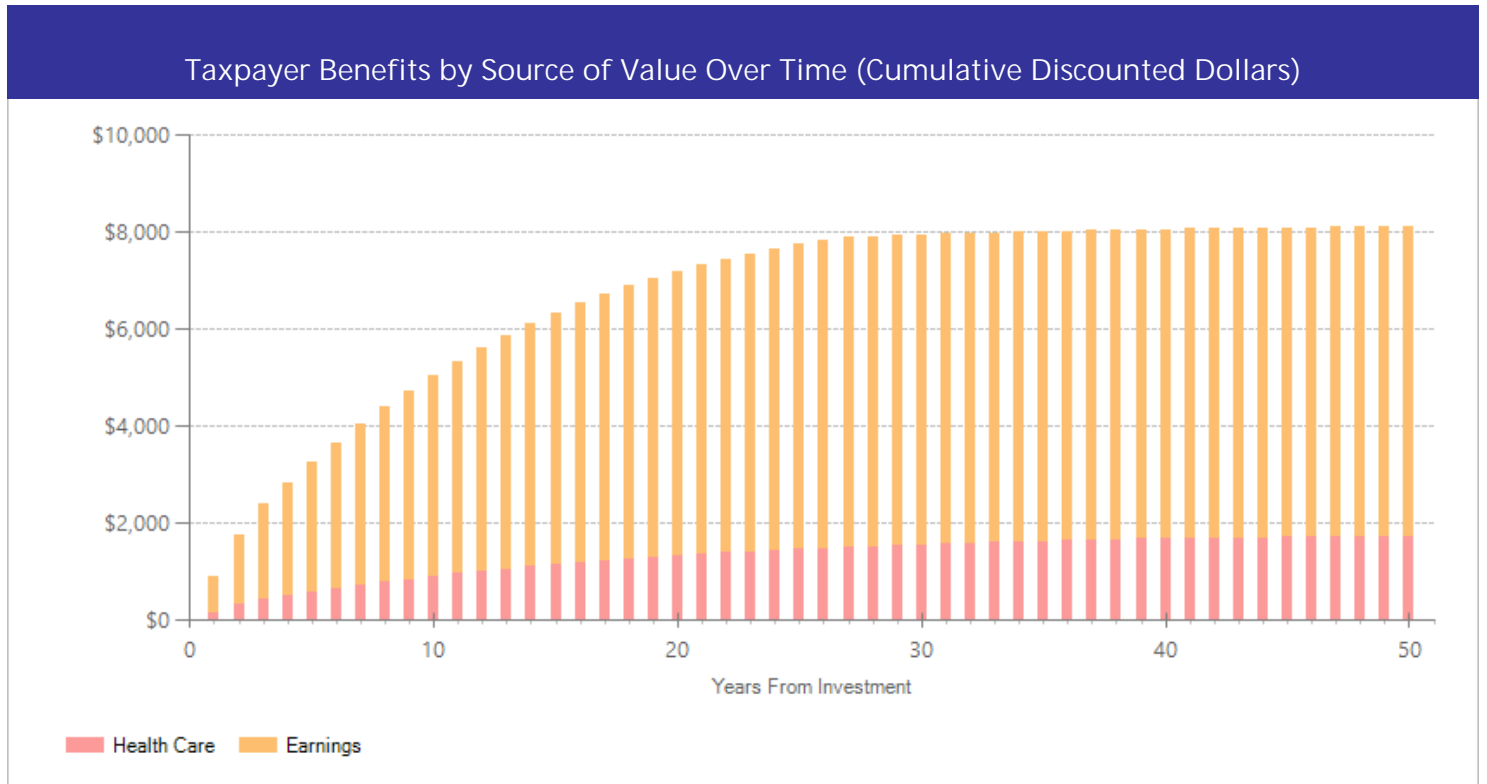


The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in discounted dollars. If the dollars are negative (bars below \$0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach \$0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above \$0, the benefits of the program exceed the initial investment.

## Benefits by Perspective Over Time (Cumulative Discounted Dollars)



The graph above illustrates the breakdown of the estimated cumulative benefits (not including program costs) per-participant for the first fifty years beyond the initial investment in the program. These cash flows provide a breakdown of the classification of dollars over time into four perspectives: taxpayer, participant, others, and indirect. "Taxpayers" includes expected savings to government and expected increases in tax revenue. "Participants" includes expected increases in earnings and expenditures for items such as health care and college tuition. "Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance. "Indirect benefits" includes estimates of the changes in the value of a statistical life and changes in the deadweight costs of taxation. If a section of the bar is below the \$0 line, the program is creating a negative benefit, meaning a loss of value from that perspective.



The graph above focuses on the subset of estimated cumulative benefits that accrue to taxpayers. The cash flows are divided into the source of the value.

## Citations Used in the Meta-Analysis

- Ammerman, R.T., Putnam, F.W., Altaye, M., Stevens, J., Teeters, A.R., & Van, G.J.B. (2013). A clinical trial of in-home CBT for depressed mothers in home visitation. *Behavior Therapy, 44*(3), 359-72.
- Barnhofer, T., Crane, C., Hargus, E., Amarasinghe, M., Winder, R., & Williams, J.M. (2009). Mindfulness-based cognitive therapy as a treatment for chronic depression: A preliminary study. *Behaviour Research and Therapy, 47*(5), 366-373.
- Barrera, M.J. (1979). An evaluation of a brief group therapy for depression. *Journal of Consulting and Clinical Psychology, 47*(2), 413-415.
- Beach, S.R.H., & Daniel, K.D. O'Leary (1992). Treating depression in the context of marital discord: Outcome and predictors of response of marital therapy versus cognitive therapy. *Behavior Therapy, 23*(4), 507-528.
- Beutler, L.E., Engle, D., Mohr, D., Daldrup, R.J., Bergan, J., Meredith, K., & Merry, W. (1991). Predictors of differential response to cognitive, experiential, and self-directed psychotherapeutic procedures. *Journal of Consulting and Clinical Psychology, 59*(2), 333-340.
- Blackburn, I.M., Bishop, S., Glen, A.I., Whalley, L.J., & Christie, J.E. (1981). The efficacy of cognitive therapy in depression: A treatment trial using cognitive therapy and pharmacotherapy, each alone and in combination. *The British Journal of Psychiatry, 139*(3), 181-189.
- Bockting, C.L., Schene, A.H., Spinhoven, P., Koeter, M.W., Wouters, L.F., Huyser, J., & Kamphuis, J.H. (2005). Preventing relapse/recurrence in recurrent depression with cognitive therapy: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 73*(4), 647-657.
- Bondolfi, G., Jermann, F., Bizzini, L., Gonzalez, C., der, L.M.V., Gex-Fabry, M., Myers-Arrazola, L., . . . Segal, Z. (2010). Depression relapse prophylaxis with Mindfulness-Based Cognitive Therapy: Replication and extension in the Swiss health care system. *Journal of Affective Disorders, 122*(3), 224-231.
- Bowers, W.A. (1990). Treatment of depressed in-patients. Cognitive therapy plus medication, relaxation plus medication, and medication alone. *The British Journal of Psychiatry, 156*(1), 73-78.
- Carrington, C.H. (1979). *A comparison of cognitive and analytically oriented brief treatment approaches to depression in black women*. Dissertation Abstracts.
- Castonguay, L.G., Schut, A.J., Aikins, D.E., Constantino, M., Laurenceau, J.-P., Bologh, L., & Burns, D.D. (2004). Integrative cognitive therapy for depression: A preliminary investigation. *Journal of Psychotherapy Integration, 14*, 4-20.
- Cho, H.J., Kwon, J.H., & Lee, J.J. (2008). *Antenatal cognitive-behavioral therapy for prevention of postpartum depression: A pilot study*. Yonsei University College of Medicine.
- Comas-Diaz, L. (1981). Effects of cognitive and behavioral group treatment on the depressive symptomatology of Puerto Rican women. *Journal of Consulting and Clinical Psychology, 49*(5), 627-632.

- Cooper, P.J., Murray, L., Wilson, A., & Romaniuk, H. (2003). Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression: 1. Impact on maternal mood. *The British Journal of Psychiatry*, *182*(5), 412-419.
- Covi, L., & Lipman, R.S. (1987). Cognitive behavioral group psychotherapy combined with imipramine in major depression. *Psychopharmacology Bulletin*, *23*(1), 173-176.
- Cullen, J.M., Spates, C.R., Pagoto, S.L., & Doran, N. (2006). Behavioral activation treatment for major depressive disorder: A pilot investigation. *Behavior Analyst Today*, *7*(1), 151-166.
- Dobkin, R.D., Menza, M., Allen, L.A., Gara, M.A., Mark, M.H., Tiu, J., Bienfait, K. L., . . . Friedman, J. (2011). Cognitive-behavioral therapy for depression in Parkinson's disease: a randomized, controlled trial. *The American Journal of Psychiatry*, *168*(10), 1066-74.
- Dozois, D.J.A., Bieling, P.J., Patelis-Siotis, I., Hoar, L., Chudzik, S., McCabe, K., & Westra, H. A. (2009). Changes in self-schema structure in cognitive therapy for major depressive disorder: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *77*(6), 1078-1088.
- Dunn, R.J. (1979). Cognitive modification with depression-prone psychiatric patients. *Cognitive Therapy and Research*, *3*(3), 307-317.
- Elkin, I., Shea, M.T., Watkins, J.T., Imber, S.D., Sotsky, S.M., Collins, J.F., . . . Parloff, M.B. (1989). National Institute of Mental Health Treatment of Depression Collaborative Research Program: General effectiveness of treatments. *Archives of General Psychiatry*, *46*(11), 971-982.
- Hogg, J.A., & Deffenbacher, J.L. (1988). A comparison of cognitive and interpersonal-process group therapies in the treatment of depression among college students. *Journal of Counseling Psychology*, *35*(3), 304-310.
- Hollon, S.D., DeRubeis, R.J., Evans, M.D., Wiemer, M.J., Garvey, M.J., Grove, W.M., & Tuason, V.B. (1992). Cognitive therapy and pharmacotherapy for depression: Singly and in combination. *Archives of General Psychiatry*, *49*(10), 774-781.
- Hopko, D.R., Lejuez, C.W., LePage, J.P., Hopko, S.D., & McNeil, D.W. (2003). A brief behavioral activation treatment for depression: A randomized pilot trial within an inpatient psychiatric hospital. *Behavior Modification*, *27*(4), 458-469.
- Laidlaw, K., Davidson, K., Toner, H., Jackson, G., Clark, S., Law, J., Howley, M., . . . Cross, S. (2008). A randomised controlled trial of cognitive behaviour therapy vs treatment as usual in the treatment of mild to moderate late life depression. *International Journal of Geriatric Psychiatry*, *23*(8), 843-50.
- Ma, S.H., & Teasdale, J.D. (2004). Mindfulness-based cognitive therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, *72*(1), 31-40.
- Macaskill, N.D., & Macaskill, A. (1996). Rational-Emotive Therapy Plus Pharmacotherapy Versus Pharmacotherapy Alone in the Treatment of High Cognitive Dysfunction Depression. *Cognitive Therapy and Research*, *20*(6), 575-592.
- Markowitz, J.C., Kocsis, J.H., Fishman, B., Spielman, L.A., Jacobsberg, L.B., Frances, A.J., Klerman, G.L., . . . Perry, S.W. (1998). Treatment of depressive symptoms in human immunodeficiency virus-positive patients. *Archives of General Psychiatry*, *55*(5), 452-7.
- McNamara, K., & Horan, J.J. (1986). Experimental construct validity in the evaluation of cognitive and behavioral treatments for depression. *Journal of Counseling Psychology*, *33*(1), 23-30.
- Miller, I.W., Norman, W.H., Keitner, G.I., Bishop, S.B., & Dow, M.G. (1989). Cognitive-behavioral treatment of depressed inpatients. *Behavior Therapy*, *20*(1), 25-47.
- Miranda, J., Chung, J.Y., Green, B. L., Krupnick, J., Siddique, J., Revicki, D.A., & Belin, T. (2003). Treating depression in predominantly low-income young minority women: A randomized controlled trial. *JAMA : The Journal of the American Medical Association*, *290*(1), 57-65.
- Mohr, D.C., Boudewyn, A.C., Goodkin, D.E., Bostrom, A., & Epstein, L. (2001). Comparative outcomes for individual cognitive-behavior therapy, supportive-expressive group psychotherapy, and sertraline for the treatment of depression in multiple sclerosis. *Journal of Consulting and Clinical Psychology*, *69*(6), 942-949.
- Murphy, G.E., Simons, A.D., Wetzel, R.D., & Lustman, P.J. (1984). Cognitive therapy and pharmacotherapy. Singly and together in the treatment of depression. *Archives of General Psychiatry*, *41*(1), 33-41.
- Murphy, G.E., Carney, R.M., Knesevich, M.A., Wetzel, R.D., & Whitworth, P. (1995). Cognitive behavior therapy, relaxation training, and tricyclic antidepressant medication in the treatment of depression. *Psychological Reports*, *77*(2), 403-420.
- Pace, T.M., & Dixon, D.N. (1993). Changes in depressive self-schemata and depressive symptoms following cognitive therapy. *Journal of Counseling Psychology*, *40*(3), 288-294.
- Propst, L.R., Ostrom, R., Watkins, P., Dean, T., & Mashburn, D. (1992). Comparative efficacy of religious and nonreligious cognitive-behavioral therapy for the treatment of clinical depression in religious individuals. *Journal of Consulting and Clinical Psychology*, *60*(1), 94-103.
- Rieu, J., Bui, E., Rouch, V., Faure, K., Birmes, P., & Schmitt, L. (2011). Efficacy of Ultrabrief Cognitive and Behavioural Therapy Performed by Psychiatric Residents on Depressed Inpatients. *Psychotherapy and Psychosomatics*, *80*(6), 374-376.
- Ross, M. & Scott, M. (1985). An evaluation of the effectiveness of individual and group cognitive therapy in the treatment of depressed patients in an inner city health centre. *Journal of the Royal College of General Practitioners*, *35*(274), 239-242.
- Rush, A.J., Beck, A.T., Kovacs, M., & Hollon, S. (1977). Comparative efficacy of cognitive therapy and pharmacotherapy in the treatment of depressed outpatients. *Cognitive Therapy and Research*, *1*(1), 17-37.
- Scott, A.I., & Freeman, C.P. (1992). Edinburgh primary care depression study: Treatment outcome, patient satisfaction, and cost after 16 weeks. *British Medical Journal*, *304*(6831), 883-887.
- Scott, M.J., & Stradling, S.G. (1990). Group cognitive therapy for depression produces clinically significant reliable change in community-based settings. *Behavioural Psychotherapy*, *18*, 1.
- Selmi, P.M., Klein, M.H., Greist, J.H., Sorrell, S.P., & Erdman, H.P. (1990). Computer-administered cognitive-behavioral therapy for depression. *The American Journal of Psychiatry*, *147*(1), 51-56.
- Shaw, B.F. (1977). Comparison of cognitive therapy and behavior therapy in the treatment of depression. *Journal of Consulting and Clinical Psychology*, *45*(4), 543-551.
- Taylor, F.G., & Marshall, W.L. (1977). Experimental analysis of a cognitive-behavioral therapy for depression. *Cognitive Therapy and Research*, *1*(1), 59-72.
- Teasdale, J.D., Fennell, M.J., Hibbert, G.A., & Amies, P.L. (1984). Cognitive therapy for major depressive disorder in primary care. *The British Journal of Psychiatry*, *144*(4), 400-406.
- Teasdale, J.D., Segal, Z.V., Williams, J.M., Ridgeway, V.A., Soulsby, J.M., & Lau, M.A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, *68*(4), 615-623.
- Teichman, Y., Bar-el, Z., Shor, H., Sirota, P., & Elizur, A. (1995). A comparison of two modalities of cognitive therapy (individual and marital) in treating depression. *Psychiatry*, *58*(2), 136-48.

- Thompson, L.W., Coon, D.W., Gallagher-Thompson, D., Sommer, B.R., & Koin, D. (2001). Comparison of desipramine and cognitive/behavioral therapy in the treatment of elderly outpatients with mild-to-moderate depression. *The American Journal of Geriatric Psychiatry*, 9(3), 225-40.
- Tovote, K.A., Fleeer, J., Snippe, E., Peeters, A.C., Emmelkamp, P.M., Sanderman, R., Links, T.P., . . . Schroevers, M.J. (2014). Individual mindfulness-based cognitive therapy and cognitive behavior therapy for treating depressive symptoms in patients with diabetes: results of a randomized controlled trial. *Diabetes Care*, 37(9), 2427-34.
- Ward, E., King, M., Lloyd, M., Bower, P., Sibbald, B., Farrelly, S., . . . Addington-Hall, J. (2000). Randomised controlled trial of non-directive counselling, cognitive behaviour therapy, and usual general practitioner care for patients with depression. I: Clinical effectiveness. *British Medical Journal*, 321(7273), 1383-1388.
- Warren, R., McLellarn, R., & Ponzoha, C. (1988). Rational-emotive therapy vs general cognitive-behavior therapy in the treatment of low self-esteem and related emotional disturbances. *Cognitive Therapy and Research*, 12(1), 21-37.
- Wilson, P.H., Goldin, J.C., & Charbonneau-Powis, M. (1983). Comparative efficacy of behavioral and cognitive treatments of depression. *Cognitive Therapy and Research*, 7(2), 111-124.
- Wilson, P.H. (1982). Combined pharmacological and behavioural treatment of depression. *Behaviour Research and Therapy*, 20(2), 173-184.
- Wright, J.H., Wright, A.S., Albano, A.M., Basco, M.R., Goldsmith, L.J., Raffield, T., & Otto, M.W. (2005). Computer-assisted cognitive therapy for depression: maintaining efficacy while reducing therapist time. *The American Journal of Psychiatry*, 162(6), 1158-64.

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