

The Effect of Gratitude on Psychological and Subjective Well-being among Hospital Staff

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Abstract

Aim: Mental health is especially important in some occupations with harsh work conditions requiring strong personal and mental capacities. Healthcare related are jobs among such occupations. Therefore, psychological and subjective well-being is especially important in staff working in the healthcare sector. The aim of the present study is to assess whether gratitude training affects psychological and subjective well-being in hospital staffs.

Methods: This semi-experimental study with pre-test and post-test was performed in 2014 in 5 hospitals affiliated to Shiraz University of Medical Sciences. The total of 70 staff was randomly divided into two groups by convenience sampling method, using random block allocation. Afterwards, the participants in the experiment group had 10 group sessions of 90 minutes of gratitude training, while the control group did not receive any interventions. All participants completed Ryff's Scale of Psychological Well Being, Subjective Happiness Scale, Satisfaction with Life Scale, and Gratitude Questionnaire. The data were analyzed by multivariate analysis of covariance (Covariance) and SPSS software (version 18).

Findings: According to research results, there was no significant difference between the mean scores of psychological well-being, domains of psychological well-being, subjective well-being, and gratitude between the two groups at baseline. Gratitude training significantly affected all domains of psychological well-being (except for autonomy) and subjective well-being.

Conclusion: The findings suggest that gratitude training would be effective in enhancing psychological well-being and subjective well-being. These findings were discussed in the context of developing effective gratitude training for enhancing the psychological and subjective well-being.

Keywords: Gratitude, Well-being, Hospital staff

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Introduction

In recent years, the pathological approach for studying human health has been criticized. Instead of defining health as the lack of disease, new approaches emphasize on "being well" instead of "being sick or bad" [1]. The World Health Organization (WHO) defines mental health as a form of well-being in which the individual identifies his/her strength, is able to cope with stress, be engaged in effective activities, and help the society as a whole. Well-being is considered a state of complete physical, mental, and social welfare and not just lack of disease [2]. The focal point in well-being is the way with which life flourishes and reaches its highest merits and potentials [3]. Ryff defines well-being as the strife toward perfection to fulfill the individual's potential capabilities [4]. Ryff, et al. [5] have categorized the psychological well-being based on the following six factors: self-acceptance, purpose in life, personal growth, environmental mastery, positive relationships, and autonomy. The new measures probed the following dimensions: (1) the extent to which respondents felt that their lives have meaning, purpose and direction (purpose in life); (2) whether they have viewed themselves to be living in accord with their own personal convictions (autonomy); (3) the extent to which they were making use of their personal talents and potential (personal growth); (4) how well they were managing their life situations

(environmental mastery); (5) the depth of connection they had in ties with significant others (positive relationships), and (6) the knowledge and acceptance they had about themselves, including awareness of personal limitations (self-acceptance) [5]. One of the areas of positive psychology is subjective well-being, which helps enhance human life. Subjective well-being has two separate components; affective (positive and negative) and cognitive that usually imply life satisfaction, and as Diener [6] believes, subjective well-being is what common people know as happiness or welfare.

Well-being results in balanced growth and health, and facilitates the correct development of skills and potentials [7]. Based on a study by Sheldon and Lyubomirsky [8] on sustainable change for well-being, three factors are involved as: genetic background, life circumstances, and intentional activity. Since genetics and life circumstances are hardly change, intentional activities can be targeted for enhancing well-being [9].

So far, many research works revealed this fact that well-being improves by participating in intentional activities like gratitude [8] as they are beneficial in everyday life [10].

As an emotion, gratitude is a two-phase cognitive process: A) recognizing that something positive has been attained, and B) recognizing that the other, as an external

source, is influential in this attainment [11]. The construct of gratitude has been used for implying different concepts such as appreciating the help of others, wondering about the miracles of the world, performing related rituals such as praying, permanent focus on positive aspects of the life, paying attention to the mortal nature of material blessings, and comparing events with the worse ones [12].

Feeling gratitude to God, others, life and the existence could lead to mental prosperity, happiness, physical and mental health, and deeper and more satisfying interpersonal relationships [13]. Studies on gratitude and well-being show that gratitude has a strong correlation with well-being [14]. In a study by Kendler et al. [15], gratitude was correlated with the reduced risk of nicotine and alcohol dependence, panic disorder, antisocial behavior, major depression, phobias, and generalized anxiety disorder. Moreover, in another study carried out on the relationship between gratitude, depression, and religion, the researchers found that gratitude protects individuals against negative affects [16]. People who are grateful have a healthier mental and physical life [17]. Moreover, they have better and closer family interactions, and gratitude has been shown to reduce high risk behaviors such as sexual intercourse during adolescence, and prevent the use of drugs and

alcohol among African-American youth [18]. Researchers have found that the increased well-being, in general, does lead to a higher efficiency in work, social interactions and health care [19]. Moreover, well-being has a positive relationship with physiological health [20]. Theoretically, viewing life as something to be grateful for strongly relates to well-being. Wood and Joseph [21] found that people with low degrees of well-being experience transient and uncontrollable instances of success and have higher degrees of depression, anxiety and negative feeling compared with others.

Grateful people have a fixed personality framework that is related to well-being [22]. These benefits are felt by the society and increase the efficacy of interpersonal relationships [23]. Emmons found that people thinking about the blessings of life and preparing a list of those blessings to be grateful about had increased levels of well-being [24]. Despite the importance of this construct for physical and mental health, gratitude has not been appropriately studied in Iran, while it is highly emphasized culturally and religiously. Currently, mental health is particularly important in some occupations with harsh work conditions requiring strong personal and mental capacities. Occupations related to health care are among such occupations. Therefore, psychological well-being and subjective well-being are especially important

for staff working in the healthcare sector. Accordingly, the aim of the current research is to systematically investigate whether gratitude training can affect psychological and subjective well-being in hospital staff.

Methods

In this semi-experimental study with pre-test and post-test, 70 people (aged 21-46 years) working in five hospitals affiliated to Shiraz University of Medical Sciences were selected based on multistage cluster random sampling. They demonstrated no overt signs of psychological disorder. Due to two reasons, five hospitals were chosen among 15:

1) Based on the formula that was mentioned before, the number of samples has been calculated 35 for each group. Due to the fact of losing samples, 80 staffs were chosen from different parts of the hospitals, and according to the total number of staffs and their distribution in each hospital ward, 5 hospitals were selected.

2) The Shiraz University of Medical Sciences permitted only for a maximum number of 5 to 7 hospitals.

The participants were randomly divided into intervention and control groups using block randomization. Also we obtained the informed consent of all participants. The participants in the intervention group had 10 group sessions of 90 minutes of gratitude training. The sessions

were held once a week, and the study period lasted for 7 months. The packages, practices, and instructions for the sessions were in accordance with those recommended by Emmons. They were also instructed to do the practices given in the educational booklet for at least 21 days. After the end of the educational sessions and performing the practices, the questionnaires were handed to all participants in the two groups simultaneously. In this research, the following questionnaires were used:

A) Ryff's Scale of Psychological Well Being:

This is a self-report questionnaire considered as one of the most important measures of psychological well-being. Ryff et al. [5] believe that the 84-item version defines psychological well-being better than the other versions. This measure has 6 sub-scales (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance). The 84 items are scored based on a Likert scale of 1 (completely disagree) to 6 (completely agree).

B) Subjective Happiness Scale (SHS): This is a four-item 7-point scale that measures individuals' global subjective happiness [25]. The reliability of SHS was $\alpha=0.77$ in the present research. The Persian version of this scale was validated by many researchers with a Chronbach's alpha of 0.76.

C) Satisfaction with Life Scale (SWLS):

Since well-being is anchored in specific life

domains, life satisfaction can be a general or global construct designed by Diener et al. [26]. The SWLS is a 5-item scale assessing global satisfaction with life. Scale responses range from 1 (*strongly disagree*) to 7 (*strongly agree*). A sample item is “in most ways, my life is close to ideal”. A higher score indicates greater satisfaction with life. Previous research found a good internal consistency ($\alpha=0.87$) [26], and in the present study, the scale also showed good reliability ($\alpha=0.89$). The Persian version of this scale was validated by Bayani and colleagues (2007) with a Chronbach's alpha of 0.83.

D) Gratitude Questionnaire-6 (GQ6): The GQ6 is a 6-item scale measuring levels of dispositional gratitude [27]. It was first designed by McCullough et al. [27]. Scale responses range from 1 (*strongly agree*) to 7 (*strongly disagree*). A sample item is “I have so much in life to be thankful for”. Higher scores indicate a greater dispositional gratitude. Previous research indicated good internal consistency ($\alpha=0.82$). The present

study found a similar internal consistency ($\alpha=0.84$).

E) Gratitude Training Package: This package was based on the book entitled “Thanks! How the New Science of Gratitude Can Make You Happier” [24]. It is to be noted that this package was translated after obtaining the permission from Professor Emmons (the writer of this package).

Data were analyzed using SPSS software (version 18). Descriptive (mean, frequency, standard deviation, and percentage) and inferential statistics (multivariate analysis of Covariance) were used as appropriated.

Results

The total number of participants were 70, including 49 women and 21 men. Also 39 were married and 31 were single. Their level of education ranged from associate degrees to PhD. We found no significant difference between the two groups with respect to age ($P=0.544$), sex ($P=0.479$), marital status ($P=0.794$), and the level of education ($P=0.810$).

Table 1: Demographic data of the research population

Variable	Features	Number	Percentage
Gender	Female	49	70
	Male	21	30
Ages	20-30	9	12.9
	31-40	54	77.1
	41-50	7	10
Marital Status	Married	39	55.7
	Single	31	44.3
Education	Associate degree	11	15.7
	Bachelor	51	72.9
	MA/MSc	7	10
	PhD	1	41

There was no significant difference between the mean scores of psychological well-being, domains of psychological well-being, subjective well-being, and gratitude between

the two groups at baseline (Table 2). However, significant differences were found between the two groups with respect to the mentioned variables (Table 3).

Table 2: Mean±SD of the research variables at baseline

Variable		Group	N	Mean	SD	P value
Psychological well-being		Control	35	308.45	59.92	0.844
		Intervention	35	311.45	67.14	
Domains of psychological well-being	Positive relations	Control	35	52.48	10.59	0.560
		Intervention	35	50.91	12.97	
	Autonomy	Control	35	50.54	11.54	0.838
		Intervention	35	49.97	11.69	
	Environmental mastery	Control	35	52.94	12.54	0.776
		Intervention	35	53.82	13.34	
	Personal growth	Control	35	52.74	14.21	0.724
Intervention		35	54.02	16.03		
Purpose in life	Control	35	50.40	9.57	0.456	
	Intervention	35	52.28	11.39		
Self-acceptance	Control	35	49.34	7.61	0.591	
	Intervention	35	50.42	9.12		
Domains of subjective well-being	Subjective happiness	Control	35	11.17	6.85	0.970
		Intervention	35	11.22	5.78	
	Satisfaction in life	Control	35	15	7.53	0.807
		Intervention	35	15.40	6.01	
Gratitude		Control	35	25.17	9.54	0.832
		Intervention	35	25.62	8.38	

Table 3: Comparison of mean scores of the domains of psychological well-being (except for autonomy), subjective happiness, and gratitude in the control and intervention groups

Variable		Group	N	Mean	SD	P value
Psychological well-being		Control	35	310.25	60.74	<0.001
		Intervention	35	374.08	67.25	
Domains of psychological well-being	Positive relations	Control	35	53.37	10.91	<0.001
		Intervention	35	64.40	12.97	
	Autonomy	Control	35	50.37	11.55	0.094
		Intervention	35	51.62	11.97	
	Environmental mastery	Control	35	53.14	12.21	<0.001
		Intervention	35	65.65	13.67	
	Personal growth	Control	35	52.77	14.38	<0.001
Intervention		35	65.71	15.39		
Purpose in life	Control	35	51.85	9.49	<0.001	
	Intervention	35	63.40	12.13		
Self-acceptance	Control	35	50.08	7.44	<0.001	
	Intervention	35	63.28	9.92		
Domains of subjective well-being	Subjective happiness	Control	35	11.37	6.73	<0.001
		Intervention	35	17.05	5.78	
	Satisfaction in life	Control	35	15.28	7.35	<0.001
		Intervention	35	23	6.73	
Gratitude		Control	35	25.31	6.62	<0.001
		Intervention	35	35.05	9.02	

Before covariance analysis, the assumptions of the test were assessed using Kolmogorov-Smirnov's test, and the results are shown in Table 4. The distribution of the scores in the

population was normal in all domains, and therefore, all pre-assumptions were confirmed. Since the significance level was set to 0.05, we used parametric tests for covariance analysis.

Table 4: The results of Kolmogorov-Smirnov's test for checking normality

Variable	Group	Kolmogorov-Smirnov z	P value
Psychological well-being	Control	0.769	0.062
	Intervention	0.688	0.055
Positive Relations	Control	0.852	0.084
	Intervention	0.688	0.404
Autonomy	Control	0.886	0.088
	Intervention	0.659	0.057
Environmental mastery	Control	0.367	0.054
	Intervention	0.630	0.122
Personal growth	Control	0.415	0.160
	Intervention	0.642	0.076
Purpose in life	Control	0.482	0.056
	Intervention	0.570	0.052
Self-acceptance	Control	0.964	0.922
	Intervention	0.745	0.597
Subjective well-being	Control	0.061	0.181
	Intervention	0.186	0.074
Satisfaction in life	Control	0.028	0.134
	Intervention	0.256	0.102

The results of covariance analysis showed that gratitude training significantly affected the psychological well-being. Furthermore, the scores of the intervention group were higher in the post-test with respect to the psychological well-being and gratitude (Table 5).

According to the F value of autonomy domain (shown in Table 4), we can conclude that the gratitude training significantly affected all domains of the psychological well-being except for autonomy.

Therefore, the participants in the intervention

group had significantly higher scores in the domains of "relation to others", "environmental mastery", "purpose in life", "personal growth", and "self-acceptance" after the intervention compared to those in the control group. As shown in Table 4, considering a significant amount of F with respect to subjective happiness and life satisfaction, it can be concluded that our intervention significantly affected the variables of subjective well-being; also by doing gratitude practices, these people became more grateful in their life (Table 5).

Table 5: Results of the Covariance test for assessing the effect of gratitude on the participants' psychological well-being, domains of psychological well-being and domains of subjective well-being

Index	Variable	Mean square	F	P-value
Group effect of psychological well-being	psychological well-being	61795.71	304.69	<0.001**
Group effect of domains of psychological well-being	Autonomy	53.68	11.70	0.094
	Positive relations	2635.26	113.64	<0.001**
	Environmental mastery	2263.88	236.79	<0.001**
	Purpose in life	1636.53	138.91	<0.001**
	Personal growth	2263.42	211.59	<0.001**
	Self-acceptance	2235.71	141.70	<0.001**
Group effect of domains of subjective well-being	Subjective happiness	498.28	288.54	<0.001**
	Life satisfaction	821.37	136.311	<0.001**
Group effect of gratitude	Gratitude	1408.45	319.026	<0.001**

Discussion

The results of the present research indicated that gratitude would be effective in all domains of psychological well-being except autonomy. This result is consistent with the findings of the previous studies, and can be interpreted on the basis of the following possibilities: A huge body of empirical research proposes that gratitude is an important factor in enhancing psychological and subjective well-being. Considering the model presented by Ryff [28], psychological well-being strives to enable individuals to fulfill their potential capabilities. In psychology, well-being is defined as a desirable human function. Individuals with a high sense of well-being experience positive emotions and evaluate their surrounding events and circumstances positively, while those with low sense of well-being evaluate these events negatively, and therefore, experience more depression, anxiety, and anger [29]. Considering the definition of gratitude that God or someone else is involved in creating

pleasing events and consequences [11], hope in others and the world, in general, is created and a benevolent view is shaped. It is to be noted that we advised the participants to continue their gratitude practices for 21 days. It can be stated that gratitude becomes internalized over time, and thus leads to sustained well-being throughout the life. As shown in Emmons and McCullough's study [30], when the participants followed the intervention's instructions on a daily basis, the positive effect of the participants did not increase, but when their intervention continued for 21 days, the findings changed significantly.

We found that gratitude affects the domains of subjective well-being and life satisfaction. This finding is consistent with previous studies. The effect of gratitude on welfare and positive affect can be explained from two perspectives. Theoretically, the effect of gratitude training is related to the nature of gratitude itself. As mentioned before, gratitude is comprised of a two-phase cognitive process: A) recognizing

that something positive has been attained, and B) recognizing that an external source influences that attainment [11]. Therefore, in our intervention, we initially tried to create awareness regarding possessions and attainments, as well as common events that are frequently happening around us and we do not pay attention to them. As a result of gratitude training, we pay attention to these events and to the sources we had not noticed previously. Thus, gratitude training increases the satisfaction and positive affect [10, 31]. Sheldon and Lyubomirsky [8] considered gratitude as one of the methods of becoming happier, which is consistent with our study. Spiritually, gratitude is in line with happiness and in contrast to emotions such as anger, anxiety, and jealousy [27]; as such, it enables individuals to pay attention to the positive aspects of their social environment, and therefore, have higher life satisfaction. The role of gratitude is also evident in clinical psychology. Researchers believe that gratitude is also related to clinical psychology for two reasons: the high significance of gratitude in defining well-being and enhancing well-being through developing the sense of gratitude by simple practices. Seligman, et al. [10] showed that gratitude has the potential to be a powerful foundation for treatment of psychological pain and stress. Moreover, gratitude interventions are seen in clinical interventions [32]. Since

healthcare staffs are the most important healthcare providers and are at risk of psychological and physical stress and complications [33], gratitude training could enhance their psychological and subjective well-being.

Conclusion

Our research hypothesis was that gratitude might be an important ingredient for psychological and subjective wellbeing, and that it could be associated with lower distress when facing in life and work. This study helps identify gratitude's relation with other positive emotions. Gratitude was related to pride, hope, inspiration, forgiveness, and excitedness. Pride is linked with the locus dimension of causality, whereas gratitude is connected with the controllability dimension. In addition, strategies for increasing gratitude could be also a part of other validated psychotherapeutic strategies, such as the Well-being Therapy (WBT) [34], the Meaning Making Intervention [35], and the Cognitive-Behavioral Stress Management (CBSM) intervention [36].

Our study had several limitations. We could not assess the long-term effects of gratitude on well-being. Also the participants were educated, and we could not generalize the results to those with lower levels of education. It is suggested to study all social classes as well as levels of education in order to enhance

the generalized capability.

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References

1. Ryff CD, Singer BH, Love GD. Positive health: Connecting well-being with biology. *Rstb* 2004; 359: 1383-94.
2. Krawczynski M, Olszewski H. Psychological well-being associated with a physical activity programme for persons over 60 years old. *Psychsport* 2000; 1(1): 57-63.
3. Seligman ME, Csikszentmihalyi M. *Positive psychology: An introduction*. Springer, 2014.
4. Ryff CD. Psychological well-being in adult life. *Curr Dir Psychol Sci* 1995; 4(4): 99-104.
5. Ryff CD, Singer B. The contours of positive human health. *Psychol Inq* 1998; 9(1): 1-28.
6. Diener E. Assessing subjective well-being: Progress and opportunities *Citation Classics* from *Social Indicators Research*. Springer Pub, 2005; p: 421-75.
7. Stephana Y, Caudroit J, Chalabaev AN. Subjective health and memory self-efficacy as mediators in the relation between subjective age and life satisfaction among older adults. *Aging Ment Health* 2011; 15(4): 428-36.
8. Sheldon KM, Lyubomirsky S. How to increase and sustain positive emotion: The effects of expressing gratitude and visualizing best possible selves. *The J Posit Psychol* 2006; 1(2): 73-82.
9. Lyubomirsky S. *The how of happiness: A scientific approach to getting the life you want*. Penguin, 2008.
10. Seligman ME, Steen TA, Park N, Peterson C. Positive psychology progress: empirical validation of interventions. *American Psychologist* 2005; 60(5): 410.
11. Weiner, B. An attributional theory of achievement motivation and emotion. *Psy Rev* 1985; 92(4): 548.
12. Wood AM, Froh JJ, Geraghty AW. Gratitude and well-being: A review and theoretical integration. *JCPR* 2010; 30(7): 890-905.
13. Emmons RA, Crumpler CA. Gratitude as a human strength: Appraising the evidence. *J Soc Clin Psychol* 2000; 19(1): 56-69.
14. Park N, Peterson C, Seligman ME. Strengths of character and well-being. *J Soc*

- Clin Psychol 2004; 23(5): 603-19.
15. Kendler KS, Liu, XQ, Gardner CO, McCullough ME, Larson D, Prescott CA. Dimensions of religiosity and their relationship to lifetime psychiatric and substance use disorders. *AJP* 2003; 160(3): 496-503.
16. Tulbure BT. Appreciating the Positive Protects us from Negative Emotions: The Relationship between gratitude, Depression and Religiosity. *Procedia-Social and Behavioral Sciences* 2015; 187: 475-80.
17. Hill PL, Allemand M, Roberts BW. Examining the pathways between gratitude and self-rated physical health across adulthood. *Pers Individ Dif* 2013; 54(1): 92-6.
18. Ma M, Kibler JL, Sly K. Gratitude is associated with greater levels of protective factors and lower levels of risks in African American adolescents. *J Adolesc* 2013; 36(5): 983-91.
19. Keyes CL, Grzywacz, JG. Health as a complete state: The added value in work performance and healthcare costs. *J Occup Environ Med* 2005; 47(5): 523-32.
20. Diener E, Chan, MY. Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being* 2011; 3(1): 1-43.
21. Wood AM, Joseph S. The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *J Affect Disord* 2010; 122(3): 213-7.
22. Wood AM, Joseph S, Maltby J. Gratitude uniquely predicts satisfaction with life: Incremental validity above the domains and facets of the five factor model. *Pers Individ Differ* 2008; 45(1): 49-54.
23. Emmons RA. Queen of the virtues? Gratitude as a human strength. *Reflective practice: Formation and supervision in ministry* 2013; 32: 50-62.
24. Emmons RA. Thanks! How the new science of gratitude can make you happier. Houghton Mifflin Harcourt, 2007.
25. Lyubomirsky S, Lepper HS. A measure of subjective happiness: Preliminary reliability and construct validation. *JSTOR* 1999; 46 (2): 137-56.
26. Diener E, Emmons RA, Larsen RJ, Griffin S. The satisfaction with life scale. *J Pers Assess* 1985; 49(1): 71-5.
27. McCullough ME, Emmons RA, Tsang JA. The grateful disposition: a conceptual and empirical topography. *J Pers Soc Psychol* 2002; 82(1): 112.
28. Nel L. The psychofortological experiences of master's degree students in professional psychology programmes: an interpretative phenomenological analysis 2011, Citeseer.
29. Diener E, Oishi S, Lucas RE. Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life.

- Annu Rev Psychol 2003; 54: 403-25.
30. Emmons RA, McCullough ME. Counting blessings versus burdens: an experimental investigation of gratitude and subjective well-being in daily life. *J Pers Soc Psychol* 2003; 84(2): 377.
31. Froh JF, Sefick WJ, Emmons RA. Counting blessings in early adolescents: An experimental study of gratitude and subjective well-being. *J School Psychol* 2008; 46(2): 213-33.
32. Duckworth AL, Steen TA, Seligman MEP. Positive Psychology in clinical practice. *J Res Pers* 2005; 47(6): 795-9.
33. Cavendish R, Konecny L, Mitzeliotis C, Russo D. Spiritual care activities of nurses using nursing interventions classification. *Int J Nurs Knowl* 2003; 14(4): 113-24.
34. Fava GA, Ruini C. Development and characteristics of a well-being enhancing psychotherapeutic strategy: Well-being therapy. *J Behav Ther Exp Psy* 2003; 34(1): 45-63.
35. Henry M, Cohen SR, Lee V, Sauthier P, Provencher D, Drouin P, Gauthier P, Gotlieb W, Lau S, Drummond N, Gilbert L, Stanimir G, Sturgeon J, Chasen M, Mitchell J, Huang LN, Ferland MK, Mayo N. The Meaning Making intervention (MMi) appears to increase meaning in life in advanced ovarian cancer: A randomized controlled pilot study. *Psycho Oncol* 2010; 19(12): 1340-7.
36. Antoni MH, Lehman JM, Kilbourn KM, Boyers AE, Culver JL, Alferi SM, Yount SE, McGregor BA, Arena PL, Harris SD, Price AA, Carver CS. Cognitive-behavioral stress management intervention decreases the prevalence of depression and enhances benefit finding among women under treatment for early-stage breast cancer. *Health Psycho* 2001; 20(1): 20-32.