

THE IMPACT OF PEACEFUL PSYCHONEUROBICS ON WORK STRESS AMONG ARMED FORCES VETERANS

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ABSTRACT

Aims: The goal of this study was to evaluate the impact of Peaceful Psychoneurobics on work stress symptoms, resilience, and mindfulness in Armed Forces Veterans.

Methods: The study design consists of a randomized uncontrolled trial with sample size of 12 participants who completed the self-report measure (Resilience scale – RS and the Five facet mindfulness questionnaire – FFMQ; Baer, 2006) and 10 Participants who completed primary outcome measure (Work Place Stress Scale : WPSS) for this single-armed protocol.

Results: 12 Participants were military veterans who met the diagnostic criteria for Work Stress Disorder and other 10 participants did not meet the diagnostic criteria of the Work Stress Disorder in strict sense but also included in statistical analysis. The study assessed pre-post within-subject scores on WPSS, resilience and mindfulness measures. It also compared, through benchmarking, results obtained from the Peaceful Psychoneurobics measure utilized in this study, with those of other military intervention studies of Work Place Stress disorder, using the WPSS as an outcome measure

Conclusions: Results of within-subject analyses supported the study's hypothesis that Peaceful Psychoneurobics would reduce work Stress Disorder symptoms. Benchmarking results indicated that although the current intervention was significantly more effective than the control condition, it was also significantly less effective than the aggregated treatment benchmark derived from other studies.

Keywords: Peaceful Psychoneurobics (PPN), Work Stress Disorder (WSD), Work Place Stress Scale (WPSS)

1. INTRODUCTION

Stress in the workplace: Stress in the workplace is a growing concern in the current state of the economy, where employees increasingly face conditions of overwork, job insecurity, low levels of job satisfaction, and lack of autonomy. Workplace stress has shown to have a detrimental effect on the health and well-being of employees, as well as a negative impact on workplace productivity and profits. There are measures that individuals and organizations can take to alleviate the negative impact of stress, or to stop it from arising in the first place. However, employees first need to learn to recognize the signs that indicate they are feeling stressed out, and employers need to be aware of the effects that stress has on their employees' health as well as on company profits. This report is a call to employers to take action on stress levels.

2. STATEMENT OF THE PROBLEM/TOPIC

Current treatments for Work Stress Disorder in the military: Stress Disorder, particularly in the military, is a focus of much research investigation. Most conclusions about treatments have been gleaned from efficacy trials (Foa, Keane, Friedman, & Cohen, 2009). Current treatment has focused on the reduction in symptoms in people with this disorder rather a global improvement in quality of life in individuals with this concern (Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). This is clinically relevant for people with Work Stress, as, for some, their primary concern may be more related to functioning, for example, more effectively in relationships, rather than symptom reduction. Unfortunately, treatments that fully alleviate or remit the extensive suffering of people with Work Stress Disorder, and treatments that increase positive health outcomes in this population, have not yet been identified.

Psychotherapeutic treatments for Work Stress disorder in the military. A recent Cochrane meta-analysis of psychological treatments for Work Stress Disorder reviewed 33 protocols and found that individual and group cognitive behavioral therapy (CBT), individual eye movement desensitization (EMDR), and individual stress management training (SM), all reduced symptoms significantly more than a wait list control, and were superior to other therapies for this health concern. These data build on earlier studies (i.e., Keane, Fairbank, Caddell, & Zimmering, 1989), which demonstrated the efficacy of exposure to work stress

stimuli, and the use of desensitization to reduce hyper arousal responses, as the foci of investigation.

Pharmacological treatments for Stress disorder in the military. Pharmacological treatments for WSD include a wide range of medication, among them selective serotonin Reuptake inhibitors and serotonin - norepinephrine reuptake inhibitors, monoamine oxidase inhibitors, tricyclic antidepressants, anti-adrenergic and beta blockers, mood stabilizers and anticonvulsants, and atypical antipsychotics (Foa, Keane, Friedman, & Cohen, 2009). These are all reared towards the reduction of specific psycho physiological symptoms. While there has been evidence supporting some of these interventions, pharmacological treatments have yet to prevent work Stress Disorder, or accelerate the process of recovery in Work Stress Disorder (Marshall. 2002). There is still much work to do in terms of finding efficacious comprehensive treatments for this population.

Yoga as an efficacious treatment for psycho physiological health concerns. Yoga is an integrative mind/body system of practices geared towards self-understanding and psychological and physical well-being (Khalsa, 2004; Garfinkel & Schumacher, 2000). Yoga, unlike some of the well-studied meditative practices in the United States, such as mindfulness and the relaxation response, contains within towards bringing awareness of, and reduction in musculoskeletal and mental tension, increasing cognitive attentiveness, physical flexibility and strength, and eliciting the relaxation response.

Peaceful Psychoneurobics. Psycho-neurobics is the best methodology to guide your mind in order to utilize your mind power for creative work, to heal your body and to keep your body and mind healthy. Practicing the Neurobics daily makes our mind and body fully fit for ever. A trident approach with muscular-respiratory actions, sound vibrations and visualization of different colors of light makes the Neurobics highly effective to ensure a cure from various diseases. In all these activities, our Psyche (Mind) is involved. All other forms of exercise may involve mechanical or physical activities but here visualization of color shower from almighty God is most essential phenomenon. Visualization of colors showers helps more than 80%. Without mind involvement psycho neurobic exercises are incomplete. Therefore, blending hand gestures and regulated deep breathing exercises with mental exercise of receiving spiritual energy or current of GOD through visualization of different colors showers coming from GOD and transferring into neuro cells of body is called Psychoneurobics.

3. RATIONALE OF THE STUDY (IMPORTANCE AND NEED FOR THE PROPOSED STUDY)

Significance of the Study: This study is critical for many reasons and of paramount importance in view of that many military servicemen and women suffer because of this debilitating, chronic disorder, and that many treatments available are only partially effective in treating WSD. The results of this study will further elucidate a potentially efficacious treatment for people with WSD and provide an additional method of treatment, which also focuses on increasing positive physical and psychological states. If positive results are found for the subjects who participate in the intervention, this information can be disseminated to the rank and file of Military services to support PPN- based practices as an effective means for increasing mindfulness and resilience and reducing WSD symptoms within this population, and also to use PPN as a means to optimally support the health and well-being of military personnel, who are often called upon to persist in extremely difficult circumstances. The research contains both a group and a home practice component. These two modes of practice may well provide the participants with self-care tools to sustain them even in times of strife.

4. BRIEF REVIEW OF THE RELATED LITERATURE.

While there are treatments available for WSD that reduce symptoms, there are still several areas for improvement in terms of WSD intervention. As described above, various psychotherapeutic modalities, in particular trauma-focused treatment protocols, have been demonstrated to be effective in reducing symptoms of trauma.

Nonetheless, these interventions have been shown to be effective in very specific circumstances, often with a specific subset of the population of people with WSD. At the same time, there is also heterogeneity in the research literature for WSD in terms of types and frequency of trauma, types of symptoms, comorbidity, and outcome measures.

These issues, as well as the highly specific and structured protocols conducted in research, make translation of the research to a clinical and “real world” setting complex, and make holistic assessment of the research literature difficult.

Even given some successful treatment of symptoms of WSD, expanding the evidence base and researching innovative treatments for WSD is critical. While symptom reduction occurs during treatment for people with WSD, considerable and debilitating symptoms often remain.

It is important, then, for non-conventional treatments to become more widely researched and developed for people with WSD. Holistic treatments, such as yoga, may be both effective at reducing symptoms and for helping individuals to move beyond symptom reduction toward increasing wellness and healing.

These types of holistic treatments are critical if we are to enable people with WSD live fuller, happier lives, with reduced or alleviated chronic symptoms. While specific symptoms of WSD are an important area of research and clinical focus, it is also critical to help WSD sufferers manage emotions, reduce stress, and build into their lives an array of skills, which reorient them toward their lives, interpersonal relationships, and long term life goals.

Yoga to increase mindfulness in military personnel. Yoga has been shown to increase mindfulness (Shelov, Suchday, & Friedberg, 2009), reduce both the physical and psychological effects of stress, and increase flexibility and strength in some populations. Mindfulness, or present-moment awareness, is an integral dimension in yoga practice, which has been shown to negatively correlate with physical and psychiatric symptoms and positively correlate with physical and psychiatric symptoms and positively correlate with well-being. Carmody and Baer (2008) indicated that various psychological and physical complaints have been reduced through mindfulness practice, as have previous studies (Linehan, 1993; Dimidjian & Linehan, 2003; Kabat-Zinn, 1990; Baer, 2003). The integration of mindfulness and the relaxation response has long been studied as an effective tool to reduce both medical and psychiatric symptoms (Kuts et al., 1985; Hellman et al., 1990).

Yoga to increase resilience in military personnel. Resilience is an individual's ability to adjust or cope with change or misfortune (Rutter, 1987). It is also sometimes viewed as hardiness (Hoge, Austin, & Pollack, 2007), and is clearly a protective factor for the population from which this study draws. Frueh et al. (2007) specifically noted the necessity for the U.S. Department of Veterans Affairs to update policies to include current empirically supported concepts of resilience. This is an important and active area of research and intervention with this population, for good reason. Resilience may not only help in increasing a person's ability to cope and manage chronic high stress situations and prevent WSD but may be an important treatment intervention to reduce symptoms, and heal those dealing with the myriad sequelae of military service, combat, and exposure to war conditions.

5. DESIGN OF THE STUDY

The research was conducted over a period of 12 months from 01 Feb 2014 to 31 Jan 2015 in the ECHS Polyclinic at Faridabad, Haryana. To overcome the deficit of an uncontrolled trial, the results in this study was benchmarked against other WSD intervention studies in the literature. Also, given the less stringent exclusion and inclusion criteria, this research similarly allowed for psychiatric medications and clinical treatments that may typically be restricted for a research protocol. However, whether clients were on medications or were undergoing current treatment, only those who still met diagnostic criteria of WSD were included.

Participation-Inclusion and exclusion criteria. Eligible participants were military personnel (active or veteran) aged 21 and older with diagnosis of Work stress. For this feasibility study, potential subject who fit inclusion criteria for the study were eligible to participate, regardless of gender, race, or ethnicity. No recruitment efforts expressly focused on recruiting a specific number of participants according to gender, race, ethnicity, or socioeconomic status. Potential subjects were excluded if they practiced more than one hour weekly strategies directly related to PPN before undertaking the current protocol. Potential subjects who were unable to follow the parameters of the study because they did not have the cognitive capacity to do so or because physical limitations impeded their ability to do even a modified version of the protocol were also excluded from the study. Participants who were receiving additional treatment (e.g. medication, psychotherapy) were eligible if they met diagnostic criteria for WSD at the time of screening, despite receiving treatment. Data regarding medications, treatments currently utilized, and length of treatment, including when treatment began, was ascertained.

Settings. The screening took place at ECHS Polyclinic, Faridabad, Haryana. Upon inclusion into the study, subject met with a clinician at the 56ASP, C/O 56 APO, where the pre-and post-intervention Work Stress Scale (WPSS) assessments' took place. The self report measures-the Resiliency Scale (RS: Wagnild & Youg, 1990), the five Facet Mindfulness Questionnaire (FFMQ; Baer, 2006), and the PPN follow-up Questionnaire (Khalsa, 2009) – were given to study participants at MDC. This MDC was equipped with supports (PPN props) that were available to participants so they could modify poses and comfortably and safely participate in the neurobic program.

6. OBJECTIVES/RESEARCH QUESTIONS

Phone and in-person screening materials, WPSS measures, and the pre-and-post treatment questionnaires (Demographic information and Medical/Personal information) are kept at the Polyclinic where seven Psychoneurobics cabins were available. Subjects were also given log sheets to log their daily practice, a CD of four 15 minute PPN practices to use for home practice, and written guidelines for home practice.

7. METHODOLOGY

Synopsis of approval for the study and for study materials were obtained from the SIGFA Solutions institutional ethical committee. Upon approval, recruitment of subjects took place in ECHS Polyclinic at Faridabad. Study staff conducted phone and in-person screening and consenting. Clinicians specifically trained in administering Workplace Stress scale questionnaires administered WPSS assessments and the research coordinator administered self-report questionnaires.

Screening protocol. Subjects were initially screened by telephone or email to preliminarily assess entry criteria by the study staff members. Potential subjects who were screened in from the phone screen met in person with research staff. During the in-person screening process, the phone screen was reviewed; the subject was informed fully of the study parameters and provided informed consent. After consent was obtained, study staff performed a medical and personal history interview, to ensure inclusion criteria were met. Subjects who did not meet entry criteria were excluded from the study and referred to a healthcare practitioner as appropriate and provided information about free or reduced rate local PPN classes.

Post screening protocol. After screening into the study, subjects underwent baseline assessments via clinician-administered and self-report questionnaires. These assessments ascertained baselines of outcome variables (WPSS, RS, and FFMQ). After these data were collected the subjects were eligible to begin the ten week PPN intervention.

Study Design. This study is an uncontrolled intervention study. Matched-pair *t* test analyses were performed to directly test whether there were significant differences within subjects on each of the three dependent measures (WPSS, RS and FFMQ). To overcome the deficit of an uncontrolled intervention, the pre-post effect size of the WPSS measure in this study was benchmarked against a treatment and a control

Condition effect size from published studies that have used the WPSS in research with military personnel.

8. DATA ANALYSIS

Calculation of within-subject effect size. In order to calculate the effect size (Cohen, 1998) for the measures in this study as well as for the WPSS scores in studies included in the benchmarks, the group means at baseline and immediately post intervention, as well as the baseline standard deviation, were ascertained. The decision to calculate effect size using the pre-treatment standard deviations was made *a priori* based on extant literature (Becker, 1988; Morris, 2000; Minami, Serlin, Wampold, Kircher, & Brown, 2008). These authors indicate that the baseline standard deviation is optimal to use to reduce confounds in effect size since the pre intervention standard deviation is not impacted by repeated testing and treatment. The results of the current PPN trial study are indicated in section Four.

Benchmarking: In order to create a benchmark, a meta-analysis was performed of studies using WPSS as an outcome measure in research with military personnel who have a WSD diagnosis. Studies which have used WPSS as a primary outcome measure were included. The effect size of the current intervention was compared to the aggregated benchmark similar to manner in which Wade, Treat, and Stuart (1998) conducted their research. Although Wade et al. (1998) did not use a meta-analytically aggregated benchmark, this was done in this study to enable a more reliable and statistically sound comparison of the effect size obtained from the current study.

Selection of studies used in construction of WPSS benchmark. An aggregated treatment benchmark and a control benchmark by which to compare this study were created by reviewing studies from meta-analyses and conducting an updated literature review using MEDLINE, PILOTS, and Psych info database. From these searches, 196, 101, and 26 studies were amassed from the PILOTS, Psych info, and MEDLINE database respectively; these were reviewed and crosschecked, and 19 contained the appropriate parameters for inclusion. However, only nine (Beidel, Frueh, Uhde, Wong, & Mentrkoski, 2011; Chard schum, Owen, & Cottingham, 2010; Frueh, Turner, Beidel, Mirabella, & Jones, 1996; Jakupcak, Roberts, Martell, Mulick, Michael, Reed, et al., 2006; Jakupcak, Wagner, Paulson, Varra, & McFall, 2010; McLay, Wood, Webb-Murphy, Spira, Wiederhold, Pyne, & Wiederhold, 2011; Manson, Schnurr, Resick, Friedman, Young-Yu, & Stevens, 2006; Pothbaum Hodges, Ready,

Graap, & Alarcon, 2001; Tan, DAO, Farmer, Sutherland, & Gevirtz, 2010) fit the above inclusion criteria and also contained the pre and post intervention mean WPSS scores and standard deviations or provided data (e.g. data on least square means) permitting the calculation of effect size for each study.

Computation and aggregation of benchmarks. In order to ensure consistency, the effect sizes of each study were calculated independently. Although effect sizes were indicated in many of the studies, there was variability in how these were computed (i.e. some used post-treatment standard deviation and other computed effect sizes and only provided least square means data).

Statistical analysis of dependent measures. Changes in all outcome measures were assessed using a matched-pair *t* test. The effect size of the pre-post WPSS scores were benchmarked against studies included in the meta-analysis to ensure

significance in effect size as compared to other clinical protocols. The records of compliance from the daily home practice sessions were evaluated from daily diaries.

9. RESULTS

The PPN intervention resulted in:-Significantly reduced clinician-rated overall WSD symptoms as assessed by the WPSS.

Significantly increased mindfulness and resilience, as demonstrated by the Five-Facet Mindfulness Questionnaire (FFMQ: Baer, 2006), and The Resilience Scale (RS; Wagnild & Young, 1990)

Effect sizes were computed within subjects for the three above measures, and results of WPSS scores obtained from this study were also benchmarked against other studies to ascertain relative efficacy as compared to other clinical trials involving service members with WSD.

Table 1

Participant Demographic, practice information and WPSS Effect Size:

Subject	Age	Gender	# Classes	Home practice	WPSS ^g
1	60	M	17	4:55:00	1.11
3	36	M	11	N/A	
5	44	M	17	63:00:00	1.02
8	55	M	3	N/A	2.96
12	52	F	17	69:15:00	0.14
13	49	M	17	45:50:00	0.56
14	51	M	6	24:45:00	
16	63	M	16	23:15:00	1.76
17	57	M	9	0:00:00	0.05
20	56	M	18	56:30:00	-0.23
25	51	M	17	9:46:00	0.65
38	38	M	16	4:08:00	0.42

Data analysis: Within-subjects data from the current study

Matched-pair *t* tests were used to directly test whether there were significant differences within subjects on the continuous variables of each of the three dependent measures (WSD symptoms, and resilience and mindfulness changes). The unbiased effect size *d* was also calculated (Hedges & Olkin, 1985). Outcome data for individuals who participated in the intervention for at least three sessions and who completed the pre-and post-intervention WPSS measure and/or self-report questionnaires were used. These participants received the treatment as well from hospital. Mean attendance to PPN classes by the 12 subjects was $M=13.67$ with a range of three to 18-20 classes attended by each participant.

Home practice information provided by the participants was at times incomplete or incorrect, so these data must be viewed with caution. For home practice compliance calculations, when a start time for home practice was indicated with no end time written, it was assumed that the 15 minute requirement was achieved. When information was incorrectly noted, for example, when one participants wrote down that practice time regularly was 6:30 – 7:00 and at one point wrote in practice time as 7:00 – 6:30 (which would have indicate negative practice time), it was assumed that the numbers had been transposed and the logical time period (i.e. 30 minutes) was calculated.

The Work place Stress Scale. The WPSS was administered at baseline and post-treatment for the current protocol. Mean change was 18.2, indicating a statistically ($t=2.822$; $p=.019$) and clinically significant reduction in WSD symptoms with a 25% drop on WPSS scores. The group mean of WPSS scores at baseline was $M=70.40$ ($SD=21.60$), which fell in the

“severe WSD symptomatology” (Weathers et al., 2001) range. Post-intervention, mean WPSS score was $M=52.20$ ($SD=24.10$), which fell in the “moderate/WSD threshold” (Weathers et al., 2001) range. Effect sizes and variance for this measure are noted under “Benchmarking”.

Individual WPSS scores. Results of individual WPSS scores demonstrate the range of scores. Four of the ten participants (40%) demonstrated a clinically significant drop of 15 points or more on the WPSS. Using the criteria from Monson et al. (200[^]) of a change in WPSS score of greater than 12 points, five (50%) individuals had a clinically significant reduction in WSD symptoms. Also, although the drops in WPSS scores for six participants who not clinically significant, three of the six experienced a reduction in the severity score *range*: for participant 13, the Severity score range dropped from 62 (severe WSD symptomatology) to 50 (moderate/threshold WSD); for participant 25, severity score range dropped from 50 (moderate/threshold WSD) to 36 (mild WSD/subthreshold); and for participant 38, severity scores range dropped from 66 (severe WSD symptomatology) to 57 (moderate/threshold WSD).

The result of the WPSS scores are compared to other trials under the “Benchmarking” heading below to further elucidate efficacy of this study relative to other WSD interventions for service personnel.

WPSS subscale score. WPSS subscale scores derived from the total WPSS scores demonstrated reductions as well; criterion D (hyperarousal, $p=.013$) *mean scores dropped significantly from an* $M=22.00$ to $M=15.30$, and although from $M=19.50$ to $M=13.80$ and $M=21.20$, respectively, reductions did not reach statistical significance (re-experiencing, $p=.76$; avoidance, $p=.055$). Table shows the results of the pre-post individual WPSS scores by subscale.

Table 3

Individual Pre Post WPSS subscribe scores

Subject	Pre			Post		
	B	C	D	B	C	D
1	31	47	35	24	38	27
5	15	41	25	17	27	14
8	24	61	26	6	12	5
12	17	4	16	12	0	4
13	20	19	23	16	10	24

16	18	20	15	0	9	11
17	30	28	26	24	33	26
20	5	36	25	14	41	16
25	22	15	13	14	11	11
38	13	*37	16	11	31	15

Note. B, C D denotes re-experiencing, avoidance, and hyperarousal scores respectively. *P* values for pre-post B, C, and D scores are 0.76, 0.055, and 0.013, respectively.

10. LIMITATIONS

There were several limitations in this study:

- One limitation was small sample size, which impacted the power of the study.
- As the study was an uncontrolled trial, there was the potential impact of such factors as non-specific therapeutic effects of social support, the passage of time, natural course of the disease, interventions with research staff, awareness of treatment condition, and regression to the mean, which makes it difficult to state that the reduction in symptoms was specifically due to the intervention.
- Research team members who were aware of the goals of the study oversaw self-report assessments, also creating a potential for bias.
- As to completion of measures, participant burden was potentially an issue, as well as the practice effects of repeat assessments.

11. CONCLUSION

Current results support PPN as a feasible, safe, and effective intervention for WSD in military personnel and suggest that further study of this type of intervention is warranted. Reduction of WSD symptoms is significant, and, while not as high as seen in the treatment benchmark, heterogeneity within the studies in the benchmark and the small sample size in this study requires careful interpretation of these results. Although this protocol is longer than many intervention for WSD, its positive focus (rather than sole focus on reduction of psychopathology) and integrative approach may well be helpful for the physiologically and psychologically mediated symptoms in WSD. As PPN is for many ongoing life-skills practice rather than solely an intervention for psychopathology, the ongoing application of

PPN in the life of the service personnel may well impact their ability to manage future life stressors and add to positive gains and psychological symptom reduction. Also possible is the utilization of PPN in conjunction with other interventions for WSD, for example, using psychoneurobic practices of self-acceptance and psychophysiological regulation to help manage the negative emotions which are often increased but not assisted by effective exposure therapies. This is of particular value in the veteran population where exposure treatments are widely utilized and are also less effective than in other populations exposed to trauma. Findings acceptable, strength based treatments that are tolerable for both the short- and long term application is critical for service personnel and this intervention has demonstrated its potential utility to this population.

While the mindfulness and resilience scores did not significantly increase as a result of the intervention, small sample size and the paucity of clinical trials using these constructs in this population necessitate caution interpretation of these results. Future studies evaluating the temporal course between WSD symptoms and these scales in the military population as well as research to empirically validate the constructs of mindfulness and resilience as related to this population are greatly needed.

Ideally, future research will include longitudinal randomized, controlled trials of PPN with military personnel using highly sensitive and specific physiological and psychological outcome measures, as well as self-report measures. These studies will further elucidate the role that PPN may play in helping service men and women heal from WSD.

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13. REFERENCES

Annscheutz, B. L. (1999). The high cost of caring... coping with workplace stress. *OACAS Journal*, 43 (3): 1721.

Burchell, B. (2002). The prevalence and redistribution of job insecurity and work intensification. In B. Burch ell, D. Ladipo, & F. Wilkenson (Eds.) Job insecurity and work intensification (pp.6176). New York, NY: Routledge.

Cahill, J., Landsbergis, P. A., & Schnall, P. L. (1995). Reducing occupational stress: An introductory guide for managers, supervisors, and union members. Presented at the work Stress and Health :95 conference, September 1995, Washington, D.C.

Canadian Centre for Occupational Health and Safety. (2000). Workplace stress – general.

Retrieved July 7, 2005 from <http://www.ccohs.ca/oshanswers/psychosocial/stress.html>

Baer, R. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science & Practive*, 10(2), 125-143.

Baer, R., Smith, G., & Allen, K. (2004). Assessment of mindfulness by self-report: the Kentucky Inventory of Mindfulness skills. *Assessment*, 11(3), 1-16.

Baer, R., Smith, G., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27-45

Canadian Mental Health Association. (n.d.). coping with too much stress. Tetrieved July 19, 2005 from <http://cmhanl.ca/education/publications/cwtms/index.php>

Canadian Mental Health association (2004). Employee assistance programs. Retrieved July 15, 2005 from <http://cmhanl.ca/education/publications/dcs/eap.php>

Canada NewWire group. (2005). New Canadian study reveals widespread concern over employee health and workplace productivity. Retrieved July 7, 2005 from <http://www.newswire.ca/en/releases/archive/June2005/08c8796.html>

Cowley, G., Hager, M., & Roger, A. (1995, March 6). Dialing the stress meter down.

L. Perrewe & D.C. ganster (Eds.), *Historical and current perspectives on stress and health* (pp.293333). Kidlington, Oxford: Elsevier Science Ltd.

Hutman, S., Jaffe, J., Segal, R., Kemp, G., & Dumke, L.F. (n.d.), Burnout: Signs, symptoms, and prevention. Retrieved July 21, 2005 from [http://hepguide.org/mental/burnout signs symptoms.htm](http://hepguide.org/mental/burnout%20signs%20symptoms.htm)

Insurance Canada. ca Inc. (n.d.). *Contributors to workplace absenteeism and healthcare benefits costs: IpsosReid survey*. Retrieved July 7, 2005 from <http://www.insurancecanada.ca/market/canada/ipsosreidWA403.php>

International Labour Organization. (2001). What is workplace stress? Retrieved July 22, 2005 <http://www.ilo.org/public/English/protection/safework/stress/whatis.htm#gender>

Mental health claims a top concern: poll. (2005, April 17). The province, A53. Murphy, L. R. (1995). Occupational stress Management: *Current status and Future Direction in Trends in Organizational Behavior* (pp.114), Vol. 2.

National Union of Public and General Employees. (2005). *Workplace stress so bad it's hurting productivity, CEOs admit*. Retrieved July 7, 2005 from <http://www.nupge.ca/news/2005/n10jn05a.htm>

Neuman, J. H. (2004). Chapter 3: Injustice, stress, and aggression in organizations. In R. W. Griffen & A.M. O'Leary Kelly (Eds.), *The dark side of organizational behavior*. (pp. 62102). San Fransisco, CA: JosseyBass.

Smith, S. (2005). *Expanded wellness program helps businesses control costs*. Retrieved July 7, 2005 from <http://www.occupationalhazards.com/articles/13684>

Stressed out at work: new research aimed at identifying management practices that lead to, or exacerbate, depression in the workplace. (2005, April 16). The Edmonto, sun 80Vandenberg, R. J., Park, K., DeJoy, D. M., Wilson, M. g., &GriffenBlake, C. s. (2002).

The healthy work organization model: Expanding the view of individual health and well being in the workplace. In P.L. Perrewe & D. C. Ganster (eds.), *Historical and current perspectives on stress and health* (pp. 57115). Kidlington, Oxford: Elsevier Science Ltd.

Barlow, D.H., Craske, M. G., Ceny, J.a., &Klosko, J. S. (1989). Behavioral treatment of panic disorder. *Behavioral Therapy*, 20, 261-282.

Becker, M., J. (1988). Synthesizing standardized mean-change measures. *British Journal of Mathematical and statistical Psychology*, 41, 257-278.

Beidel, D. C., Frueh, B. C., Uhde, T. W., wong, N., &Mentrikoski, J. M. (2011).

Multicomponent behavioral treatment for chronic combat-related posttraumatic stress disorder: a randomized controlled trial. *J Anxiety disord*, 25(2), 224-31.

Benson, H. (1975). *The relaxation response*. New York: Avon.

Benson, H., Beary, J. F., & carol, M. P. (1974). The relaxation response. *Psychiatry*, 37, 37-46.

- Bhargava, R., Gogate, M. g., &Macarenhas, J. F. (1998). Autonomic responses to breath holding and its variations following pranayama. *Indian J Physiology Pharmacology*, 32,25764.
- Bishop, S. R., Lau, M. A., Shapiro, S. L., Carlson, L. E., Anderson, N. D., Carmody, J. F., Segal, Z. V., Abbey, s., Speca, M., Velting, D., &Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Scienceand Practice*, (11)3, 230-254
- Bormann, J.E., Thorp, S., Wetherell, J., L., &Golshan, S. (2008). A spiritually based group intervention for combat veterans with posttraumatic stress disorder: feasibility study. *J Holist Nurs.*, 26(2), 109-16.
- Bucheld, N., Grossman, P. &Walach, H. (2001). Measuring mindfulness in insight meditation (Vipassana) and meditation-based pshychotherapy: the development of the Freiburg Mindfulness Inventory (FMI). *Journal for Meditation andMeditation Research*, 1, 11-34.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nded.). Hillsdale, NJ: Lawrence Earlbaum Associates.
- Corliss, R., &Funderberg, L. (1991). The power of PPN. *Time*, 157(16). 54-62.
- Creamer, M., Burgess, P., & McFarlane, A. C. (2001). Post-traumatic stress disorder: findings from the Australian National Survey of Mental Health and Well-being.
- Foa, E. B., Keane, T. M., Friedman, M. J., Cohen, J. A. (2009). Effective treatments for WSD: *Practice guidelines from the International Society for Traumatic Stress Studies*. New York, NY: The Gulford Press.
- Friedman, M. J., Schnurr, P. P., &McDonagh-Coyle, A. (1994). Post-traumatic stress disorder in the military veteran. *PsychiatrClin North Am*, 17(2), 265-77.
- Frueh, B.C., Turner, S. M., Beidel, D. C., Mirabella, R. F., & Jones, WJ. (1996). Trauma management therapy: a preliminary evaluation of a multicomponent behavioral treatment for chronic combat-related WSD. *Behav Res Ther*, 34(7), 533-43.
- Fruech, B. C., Grubaugh, A. L., Elhai, J. D., Buckeley, T. C. (2007). US Department of Veterans Affairs Disability Policies for Posttraumatic Stress Disorder:
- Groessler, E. J., weingart, K. R., Aschbacher, K., Pada, L., &Baxi, S. (2008). PPN for Veterans with Chronic Low-Back Pain. *The Journal of Alternative and Complementary Medicine*, 14(9), 1123-1129.doi: 10.1089/acm.2008.0020.

- Hovens, J. E., van der Ploeg, H. M., Klaarenbeek, M. T., Bramsen, I., Schreuder, J. N., Rivero, V. V. (1994). The assessment of posttraumatic stress disorder: with the Clinician Administered WSD Scale: Dutch results. *J Clin Psycho.*, 50(3), 325-40.
- Hudson, S.A., Beckford, L.A., Jackson, S. D., Philpot, M. P. (2008). Validation of a screening instrument for post-traumatic stress disorder in a clinical sample of older adults. *Aging Mental Health*, 12(5), 670-670.
- Iyengar, B. K. S. (1979). *Light on PPN*. New York, NY: Schocken Books.
- Jakupcak, M., Roberts, L. J., Martell, C., Mulick, P., Michael, S., Reed, R., Balsam, K. f., Yoshimoto, D., & McFall, M.(2006). A pilot study of behavioral activation for veterans with posttraumatic stress disorder. *J Trauma Stress*, 19(3), 387-91.
- King. L. A., King, D. W., Fairbank, J. A., Keane, T. M., & Adams, G. A. (19978). Resilience-recovery factors in post-traumatic stress disorder among female and male Vietnam Veterans: hardiness, postwar social support, and additional stressful life events. *J PersSoc Psychol.* Feb; 74(2), 420-34.
- King, D. W., King, L. A., Keane, T. M., Foy, D. W., & Fairbank, J. A. (1999). Posttraumatic stress disorder in a national sample of female and male Vietnam veterans: Risk factors, war-zone stressors, and resilience-recovery variables. *Journal of Abnormal Psychology*, 108(1), 164-170.
- Kosten, T. R., Mason, J. W., Giller, E. L., Ostroff, R.B., Harkness, L. (1987). Sustained urinary norepinephrine and epinephrine elevation in post-traumatic stress disorder. *Psychoneuroendocrinology*, 12(1), 13-20.
- Krishnamurthy, M., & Telles, S. (2007). Effects of PPN and an ayurveda preparation on gait, balance and mobility in older persons. *Med SciMonit*, 13(12),19-20.
- Kulka, R. A., Schlenger, W.E., Fairbank, J.A., Hough, R. L., Jordan, B. K., & Marmar, C. R. (1990). *Trauma and the Veitnam War generation*. New Yor: Brunner/Mazel.
- Lanius, R. Bluhm, U., & Pain, C. (2006). A review of neuroimaging studies in WSD: Heterogeneity of response to symptom provocation. *Journal of Psychiatric Research*, 40(8), 709-729. Doi: 10. 1016/j. jpsychires.2005.07.007

Lutz, A., Slagter, H., Dunne, J., & Davidson, r. (2008). Attention regulation and monitoring in meditation. *Trends in Cognitive Sciences*, 12(4).

McEwen, B. S. (2007). Physiology and Neurobiology of Stress and Adaptation: Central Benchmarks for psychotherapy efficacy in adult major depression. *J Consult Clin Psychol.* 75(2), 232-43.

Morone, N. E., Greco, C. M., & Weiner, D. K. (2008). Mindfulness meditation for the treatment of chronic low back pain in older adults: a randomized controlled pilot study. *Pain*, 134(3): 310-9.

Subramanya P., Telles S. (2009). Effect of two PPN-based relaxation techniques on memory scores and state anxiety. *Biopsychosoc Med.*3,8.

Szabo. A., Mesko. Caputo. A., & Gill, E. T. (1998). Examination of exercise-induced feeling states of four modes of exercise. *International Journal of SportPsychology*, 29, 376-390.

Udupa, K. N., Singh, R. H., &Settiwar, R. M. (1975). Studies on the effect of some yogic breathing exercises (pranayams) in normal persons. *Indian J Med Res*, 63, 1062-65.

Vogt, D. S., Proctor, S.P., King, D.W., King, L.a., Vasterling. J.J., 2008. Validation of scales from the Deployment Risk and Resilience Inventory in a sample of operation Iraqi Freedom Veterans. *Assessment*, 15, 391-403.