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Full Title

“Effectiveness of Body-Mind-Spirit Intervention on wellbeing, functional impairment and quality of life among depressive patients- A randomized controlled trial”

Running head

Effectiveness of Body-Mind-Spirit (BMS) intervention for depressive patients

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ABSTRACT

Aim: The aim of the study was to examine the efficacy of Body-Mind-Spirit Intervention in improving outcomes (well-being, quality of life and functional impairment) among depressive patients.

Background: Depressive disorders lead to significant dysfunction, disability and poor quality of life among sufferers. Body-Mind-Spirit intervention has been associated with improvements in the outcomes; however, few studies have examined this among depressive patients.

Design: True experimental pre-post equivalent groups design was adopted with longitudinal measurement of outcomes.

Methods: Participants were 120 adult depressive patients visiting the psychiatric outpatient department of a District Hospital in India. The participants were randomly assigned to either Body-Mind-Spirit or Treatment As Usual group between July 2011 and Jan 2013. The Treatment As Usual group ($n=64$) received only routine treatment (antidepressants and structured psycho-education) in the hospital. The Body-Mind-Spirit group ($n=56$) received four weekly Body-Mind-Spirit group sessions in addition to the routine treatment. Outcome measures on depression, well-being, functional impairment, and quality of life were evaluated for both groups at baseline and at four follow-up assessments in the 1st, 2nd, 3rd, and 6th month. Treatment effects of the Body-Mind-Spirit intervention were analyzed by repeated-measures analysis of covariance.

Findings: Compared to the Treatment As Usual group, the Body-Mind-Spirit group showed significant reduction in depression and functional impairment and significant improvement in well-being and quality of life scores over the 6-month study period.

Conclusion: The present findings provided evidence for the effectiveness of integrating a complementary therapy such as the Body-Mind-Spirit intervention with conventional treatment in improving prospective outcomes among depressive patients.

SUMMARY STATEMENT

Why is this research or review needed?

- Depressive disorder affects the body and the mind alike and is a primary cause of disability, workplace absentism, decreased productivity, and poor quality of life.
- There is substantial evidence that body-mind interventions can benefit the psychological functioning and quality of life for patients suffering from chronic illness.
- The effectiveness of an integrated body-mind-spirit intervention in improving patient's well-being and quality of life has not been investigated in the Indian context.

What are the key findings?

- Body-Mind-Spirit intervention involves self love techniques, acceptance of negative emotions teaching strategies to improve general health and emotional management. It may be an effective complementary therapy for depressive patients.
- Depressive patients who received Body-Mind-Spirit intervention implemented by a psychiatric nurse had showed a reduction in depressive symptoms relative to Treatment as Usual group subjects in 6 month follow-up.
- Body-Mind-Spirit intervention is simple to administer and can decrease depressive symptoms along with pharmacological therapies for depressive patients.

How should the findings be used to influence policy/practice/research/education?

- Nurses can be successfully employed in providing alternative care for depressive patients. Utilizing their expertise would imply a paradigm shift in the traditional nursing approach to patient care.
- Implementation of Body-Mind-Spirit intervention would therefore help to shed light on many issues and in turn open up new avenues for holistic nursing care.
- Psychiatric nurses in offering Body-Mind-Spirit group therapy for depressive patients might augment the excellent care in psychiatric nursing.

Keywords

Depression, Body-Mind-Spirit intervention, complementary therapies, well-being, functional impairment, quality of life, psychiatric nursing, nurse, holistic care, body-mind connection.

INTRODUCTION

Depression is a widely prevalent, severe, and multifaceted disease that involves the whole person, including the body, mind, and spirit (Tanyi *et al.* 2011). It is one of the important causes of disability across the world. The World Health Organization estimates that in terms of worldwide disability, depression will be second only to heart disease by 2020 (WHO 2006). While about 3- 4% of India's one billion plus population suffers from major mental disorders an estimated 7-10% of the population experiences minor depressive disorders (Sinha 2011). Due to the enormous impact of depression on the health of an individual, there is a necessity for implementing useful approaches to curtail the length of depressive episodes. For severe depression, a combination of pharmacological and psychotherapeutic approaches is preferred (Asghar *et al.* 2007). Given the multi dimensional causes of depression, multiple approaches to its treatment are efficacious (Nedley 2005).

Background

Nurses acknowledge their role as professionals who should be caring for patients holistically. Holistic care perceives persons as a union of physical, psychological, social and spiritual components. These components are interconnected, with the total being more than the summation of its parts. Many existing nursing theories which support holistic care and identify humans this way state that holistic care incorporates body, mind and spirit (BMS) (Saudia *et al.* 1991). Majority of nurses who carry out holistic nursing practice incorporate alternative modalities into therapeutic practice with an intention to meet patient's physiological, psychological, and spiritual needs. This incorporation serves to complement the conventional therapies and also helps the patients' access their healing potential thus enriching the scope of nursing practice (Dossey 2008). Hogan (2004, p. 3) states that, "the role of modern nursing has expanded to include a heightened emphasis on illness prevention, health promotion, and concern for the client's holism". In order to reduce stress, improve self-control and positive well-being among patients; nurses are empowered to practice BMS interventions which include meditation, guided imagery, therapeutic touch, and humor.

To ensure meeting the holistic needs of the individual (body, mind, and spirit), the concept of body-mind-spirit connection is promoted in the intervention. This holistic intervention aims to help patients deal with their illness; how to think about it, cope with it and counter it. Holistic approaches in health care hold guarantee for positive outcomes when the body-mind-spirit model is embraced (Lorentz 2006). Body-mind-spirit techniques are virtually physically and emotionally risk free when used in combination with conventional medicine. They are cost-

effective to the practitioner and to the patient since nurses can perform them without using any machines. Patients who practice body-mind-spirit modalities may have fewer doctor visits and hospitalizations which help to reduce medical costs significantly. Many of the body-mind-spirit interventions have no side effects and improve patients' self-control and their sense of well-being (Lorentz 2006).

There is ample evidence that body-mind-spirit interventions have positive effects on psychological functioning and quality of life among patients with chronic illness. Randomized controlled trials conducted in Hong Kong and Taiwan reported that body-mind techniques helped reduce depression, anxiety, and somatic complaints in various clientele (Chan *et al.* 2006, Liu *et al.* 2008, Lee *et al.* 2009). Numerous experimental studies have reported positive effects of body-mind-spirit training on depression (Nakao *et al.* 2001, Tsang *et al.* 2002, Shapiro *et al.* 2007), and experimental studies have indicated that body-mind-spirit intervention led to considerable decline in psychological and physical symptoms among depressive patients (Chouk *et al.* 2004). In a study of inpatients with major depressive disorder, a combination of body-mind-spirit techniques and medication resulted in greater improvements in depressive symptoms when compared to control subjects who received medication and psychosocial support (Hsiao 2009). Although the interventions used in the studies vary in dosage and mode of delivery, they provided evidence to the effectiveness of body-mind-spirit techniques as a supplementary treatment in reducing anxiety and depression.

Psychiatric nursing has an exclusive role to play in the holistic approach to care. Many patients with severe depression find themselves at a juncture where their lives seem insignificant. Their holistic self requires desperate healing as their self-esteem and coping skills are grossly impaired. Though it is easy to meet the biological and social needs of the patients, to attain true healing the entire holistic self must be treated. As nurses spend 24 hours a day with the patient, they are most appropriately placed to understand the body, mind and spirit relationship and provide integrated interventions. However, few studies have examined the effectiveness of BMS intervention by nurses among depressive patients. The present study investigated BMS Model set forth by Chan, Ho, & Chow (2001), which highlights components of Buddhism, recognition and acceptance of negative emotions, self-love techniques and gaining through pain. These concepts, which focus

on bringing out inner abilities and strengths of the individual, have not been the main focus in previous Indian studies (Sreevani *et al.* 2013). The present study evaluated the effectiveness of BMS intervention in improving well-being among depressive patients.

METHODS

Aim

The present study aimed to examine the effectiveness of BMS intervention in improving outcomes (well-being, quality of life and functional impairment) among depressive patients.

Design

The design was true experimental pre-post equivalent groups with six-month follow-up.

Participants

Participants were 120 adult depressive patients attending the outpatient department of a District Hospital in Kolar, India. The participants were randomly assigned to either the BMS or treatment-as-usual (TAU) group via a computer-generated random sequence of numbers. Simple randomization was performed with no blocking using a random allocation sequence. The inclusion criteria were age between 20 and 40 years and a diagnosis of mild or moderate depressive disorder made by a psychiatrist based on ICD 10 criteria. The study excluded those with psychotic symptoms, co-morbid disorders, and current drug or alcohol dependence or abuse.

Data collection

Recruitment of subjects took place at a psychiatric outpatient department of the District Hospital in Kolar, India. Data were collected from July 2011 to Jan 2013. The first author initially identified patients who had a diagnosis of mild or moderate depression and were on antidepressant treatment. Each patient was contacted and a personal interview was arranged in a psychiatric counseling room for baseline assessment. They were informed that they would be randomly assigned to either the BMS or TAU groups and also about the kind of participation required from them. Although this non-blinding to treatment may have affected the data obtained on the outcomes assessed, it was necessary to provide detailed information about BMS and TAU

to participants because of the nature of the required participation, both during the intervention as well as the 6-month follow up. Following baseline assessment, all participants were randomly assigned by the first author to either the BMS or TAU groups.

Ethical considerations

This study was approved by the Institutional Ethical Committee. Ethical concerns were dealt by explaining purpose, nature, time duration of the study, researcher's contact information, confidentiality, and subjects' rights involving choice to participate or withdraw at any time from the study. The information was provided both orally and in written form.

Measures

The subjects responded to the Beck Depression Inventory II (BDI II), Body-Mind-Spirit Well-being Inventory (BMSWBI), Quality of Life (QOL), and Work and Social Adjustment (WSA) Scale at the outpatient department. The outcome measures were assessed at baseline (T0) and at four follow-up assessments in the 1st (T1), 2nd (T2), 3rd (T3), and 6th (T4) month.

1. Beck Depression Inventory II (BDI II) (Beck *et al.* 1996) is a self-administered 21-item 4-point Likert scale. Score ranges from 0 to 63 and higher scores indicate greater symptoms. The Indian version of the BDI showed high internal consistency (Cronbach's alpha = 0.96) (Basker *et al.* 2007).
2. Body-Mind-Spirit Well-Being Inventory (BMSWBI) (Ng *et al.* 2005). It is a 56-item, 11-point multidimensional inventory for assessing holistic health, with higher scores indicating better health. It comprises of four subscales: Physical distress – 14 items, Daily functioning – 10 items, Affect – 19 items, and Spirituality - 13 items. The alpha coefficients of the BMSWBI ranged from .87 to .92.
3. Work and Social Adjustment Scale (WSAS) (Mundt *et al.* 2002). It is a self-report scale of functional impairment. It comprises of five questions on a 0 to 8 scale. The range of the total score is 0 to 40, with lower scores indicating higher functioning. Cronbach's alpha of the scale ranged from 0.70 to 0.94 and test-retest correlation was 0.73.

4. WHO Quality of life BREF Scale (WHO QOL BREF) is a 26-item self-administered scale that measures four domains of QOL: physical health, psychological health, environment and social relationships. Items are scored from 1 to 5 with total scores ranging from 26 to 130. Higher the score better the Quality of Life. This scale was chosen as it is a generic scale developed concurrently in 15 field centers around the world (India was one of the participating countries) (Skevington *et al.* 2004). The Indian version of WHO QOL BREF has been validated and has demonstrated good content validity, discriminant validity, test-retest reliability, and internal consistency (Chandra 2003).

Validity and reliability

Face and content validity approaches were used to validate the tools. A convenience sample of five patients with the same sample inclusion and exclusion criteria was sought from data collection sites in December 2010. These five patients were willing to be surveyed. The responses resulted in modifications to the wording in the questionnaire.

Content validity of the tools and intervention module was assessed by a panel of 12 subject experts. Panel members were asked to rate each tool and sessions for their appropriateness and use among depressive patients. A few suggestions were given by them in order to ensure it is better tailored to the needs of patients; these were subsequently incorporated into the module.

Intervention

Participants in BMS group underwent the BMS intervention spread over 4 weeks, along with routine treatment in the hospital. Intervention was given as a group approach by the first author, who received Body-Mind-Spirit practitioner training at Centre on Behavioral Health, the University of Hong Kong, Hong Kong, and is a certified practitioner. Each group consisted of 3 to 4 participants. The intervention consisted of a weekly 3-hour session for 4 weeks. A total of 15 groups completed the 4 week intervention. BMS intervention was originally developed by Chan (2001) which emphasizes a holistic concept of health. This model incorporates mini-lectures on general instructions to health and approaches on emotional management; stress reduction training coupled with one second techniques of acupressure exercises, breathing techniques and meditation. Activities such as writing, drawing and homework activities encourage the discovery of positive meaning from negative experiences.

In the present study, BMS intervention was divided into four sessions: (a) Growth through pain, (b) Emotional management, (c) Love, letting-Go and forgiveness, and (d) Transformation of self.

- a) Growth through pain: The objective of this session was to empower the participants for self-healing. The therapist overviewed the BMS intervention. Participants were provided a supportive environment for venting negative emotions, understand general instructions to health and analyze the body-mind-spirit relationship. They were also explained the interrelatedness of their physical health with their emotions and spiritual well-being, and motivated to face depressive disorder positively. They took part in ten techniques of longevity exercises, group back massage, and abdominal breathing exercises to improve their well-being. Therapist assessed participants' strengths and revealed them in following sessions. Based on Buddhist philosophy, the subjects were educated in a group that numerous desires are cause for distress, enabling them to understand the concept of no pain no gain (Sreevani et al. 2013).
- b) Emotional management: In session 2, participants understood the effect of emotions on health and ways to manage their negative emotions. The participants practiced hand massage acupressure exercises, to relieve anxiety. Therapist helped the participants recognize the nature of loss and adapt a positive thinking attitude by involving them in therapeutic writing and group sessions (Sreevani et al. 2013).
- c) Love, letting go and forgiveness: The key components in session 3 include practicing forgiveness techniques, self-love techniques and meditation to reflect upon them about the meaning of self, letting-go and forgiveness. Thus, forgiving oneself and others helps to free from negative energy, learn self-love and attain joy and peace of mind. In this session participants were taught that negative emotions are derived from persistent grudges held in the mind. In group approach participants discussed the meaning of suffering, attachment, and letting go (Sreevani et al. 2013).
- d) Transformation of self: In the 4th session, participants verbalized about future goals, developed a healthy life plan, and summarized the improvement in their condition and the

resultant transformation (Sreevani *et al.* 2013).

Participants in the TAU group received a) antidepressants (tricyclic antidepressants or specific serotonin reuptake inhibitors); b) structured psycho-education (education about causes, signs and symptoms of depression, side effects of medication, early signs of relapse, importance of medication compliance and follow-up); c) brief counseling for any emotional/interpersonal issues for 15 minutes duration by psychiatrist. The TAU participants also visited the psychiatrist monthly for medication, during which time the psycho-education was reinforced, and any continuing stressors were addressed.

Data attrition

To achieve a statistical power of 0.8 with a medium effect size ($\eta^2 = 0.059$) and significance level of 0.05 in repeated-measures analysis of covariance under the proposed 2-group, 5-wave study design, a sample size of 96 was needed. To account for the expected attrition (20%) of participants, 120 subjects were recruited for the study. At the end of 6 months, 100 (83%) subjects remained in the study and the remaining 20 (17%) dropped out. The dropout rate in the 2 groups at the end of this study was 11% for BMS group and 22% for TAU group. The 20 dropouts did not differ from the completers in terms of baseline outcome variables and demographic and clinical characteristics. The reasons for dropout were change of place, no reduction in depressive symptoms, treatment termination, time and distance factors (Figure 1).

Data analysis

Intention-to-treat data analysis was carried out in this study using SPSS version 20. Missing data for the 20 dropouts were handled via last observation carried forward method. By imputing the missing data, we included data from all of the 120 participants in the analysis. Baseline characteristics of the BMS and TAU groups were compared using chi-square or independent t-tests for categorical or continuous variables, respectively. The changes in the outcome variables from baseline to 6-month follow-up were compared using 2-way repeated-measures analysis of covariance. Pre-intervention socio-demographic and clinical characteristics that differed significantly across the BMS and TAU groups were entered as control variables in the analysis. Partial eta-squared (η^2) was calculated as the effect size of major statistical tests based on

Cohen's suggestions (1988). The effect size is classified into 3 levels: 0.010 for small, 0.059 for medium, and 0.138 for large effects.

RESULTS

Sample characteristics at baseline

Mean age of the sample were 30.2 years (SD = 7.5), 58% were female, 65% had less than secondary level education, 64% were married, and 66% were residing in rural area. Median monthly income of the sample were Rs. 5000 (Mean = 7525, SD = 5446.0). Eleven percent of the sample had a history of suicidal attempts, 21% of the sample suffered previous episode of depression, and 13% of the sample had family history of depression. Mean duration of present illness were 16.0 months (SD = 14.3). Both the groups (BMS and TAU) were comparable in terms of their baseline and clinical characteristics, except for educational status, monthly income, and duration of illness (Table 1 & 2).

Intervention effect

Repeated measures analysis of covariance was conducted by controlling for educational status, monthly income, duration of illness as covariates. There were significant BMS treatment effects in all of the outcome variables between two groups. Compared to the TAU group, the BMS group showed statistically significant decreases in depression and functional impairment ($F_{(4,460)}= 29.87, p<0.001, \eta^2=0.206$; $F_{(4,460)}= 23.35, p<0.001, \eta^2=0.169$) and statistically significant increases in well-being and quality of life ($F_{(4,460)}= 48.15, p<0.001, \eta^2=0.295$; $F_{(4,460)}= 49.18, p<0.001, \eta^2=0.300$) over the 6-month interval (Table 3). The effect size of the treatment effects was consistently large for all of the outcome variables ($\eta^2 > 0.138$) (Table 3).

DISCUSSION

This is one of the few known studies on the subject which showed that BMS intervention implemented by a nurse was instrumental in bringing about significant changes among Indian depressive patients in terms of reduction in depressive and functional impairment scores, improvement in well-being and quality of life scores. This testifies the significance of integrating holistic therapy for depressive patients by incorporating a culturally relevant and spiritually oriented dimension in patient care. The findings are in accordance with earlier research, (Hsiao

et al. 2007; Tsai *et al.* 2008, Hsu *et al.* 2009, Yang *et al.* 2009, Little *et al.* 2009, Chan *et al.* 2011, Hsiao *et al.* 2011, D'silva *et al.* 2012) which documented that adding complementary therapy like BMS intervention along with routine treatment favorably affects outcomes in depressive patients. The present study provides empirical evidence of Eastern based BMS intervention model among Indian depressive patients and helps to broaden the scope of depression treatments for different population.

Depressive disorder results in a multitude of negative impact on an individual's life together with satisfaction at work and overall sense of fulfillment (Papakostas *et al.* 2004). Functional impairment at 6 months follow-up decreased more effectively in BMS group than in TAU group subjects. This may well suggest that practicing various nurturing activities may result in increased functional capacity and vivacity. BMS intervention not only helps to deal with the problems at hand but also aims to nurture the self and enhance the self-healing and self-balancing abilities of individuals. The current findings were supported by Chan (2001) who reported the effectiveness of Body-Mind-Spirit approach in improving physical, mental and spiritual energy levels of divorced women.

In the present study, well-being scores significantly improved among BMS group subjects compared to routine treatment with a large effect size. The study findings are consistent with previous literature where multi-modal body-mind group therapy showed significant improvements in depressive mood and well-being measures (Little *et al.* 2009). In a BMS therapy study on Taiwanese female depressive patients, all patients reported that their holistic well-being improved after participation in the group therapy. Comparisons of pre and post treatment scores on BDI-II and BMSWBI demonstrated a considerable reduction in depression and negative affect, as well as significant improvement in positive affect. This improvement sustained for six months, indicating that body-mind-spirit group approach can facilitate the chronically depressed population.

The overall quality of life of the subjects in BMS group showed a marked improvement in 6 months follow-up compared to TAU group. These results are consistent with findings of previous studies on cancer patients (Targ & Levine 2002, Liu *et al.* 2008, Lee *et al.* 2010 and on community adults (Lee *et al.* 2004). The promising results provide further evidence that BMS model, which adapts a group modality to therapy and incorporates both Western therapeutic techniques and Eastern philosophies and practices, is effective in improving the quality of life

among depressive patients. These findings demonstrate that BMS intervention is an effective adjunct in reducing the depressive symptoms, functional impairment and enhancing the well being and quality of life in depressive patients.

Participants acquired comprehensive knowledge regarding depressive disorder, carried out self-help role and achieved a sense of control which improved their well-being. Therapy provided a context for the participants to realize that life challenges are ceaseless and that we can appreciate problems and difficulties as they help us grow in our process of becoming. The activities present in BMS module help participants not only deal with the problems at hand but also to nurture the self and enhance their self healing abilities. The present study has provided preliminary evidence in the Indian context that psychiatric nurses can be effectively trained to implement complementary therapies in promoting holistic well-being for depressive patients.

Limitations

Though the study outcomes are encouraging, there are a few limitations. First, participants were recruited from only one hospital; the findings may be limited by a setting effect. Researchers who replicate this study might consider a larger sample from multiple sites. Another limitation was that while BMS intervention employed a group based approach, individual approach was followed for TAU participants. Therefore, a group effect may have influenced the outcome. Another limitation was that the outcome measures depended solely on self-reporting. More qualitative assessment can provide a more comprehensive picture of the efficacy of the BMS intervention among depressive patients.

Nonetheless, the findings support to the efficacy of the BMS intervention in facilitating well-being among depressive patients in India. It is likely that the BMS model's culturally appropriate concepts and physical exercise components contributed to these positive changes. There is an urgent need to carry out further studies so as to build on the present findings with an endeavor to secure long-term benefits. Also they should aim at comparing the relapse rate between groups to understand the protective effects of BMS intervention and recognizing definite therapeutic components and mechanisms that contributed to the effectiveness of the present study.

CONCLUSION

Depressive patients who received BMS intervention implemented by a psychiatric nurse had statistically significantly reduced depressive symptoms and functional impairment and improved wellbeing and quality of life relative to TAU group subjects at 6 month follow-up. Based on the findings of the present study, the BMS intervention is an effective model that should be considered as an integral component of any holistic program for depressive patients.

REFERENCES

- Asghar S, Hussain A, Ali SM, Khan AK & Magnusson A (2007) Prevalence of depression and diabetes: a population-based study from rural Bangladesh. *Diabetes Medicine* 24, 872–877.
- Basker M, Moses PD, Russell S, Russell PS (2007) The psychometric properties of Beck Depression Inventory for adolescent depression in a primary-care paediatric setting in India. *Child and Adolescent Psychiatric Mental Health* 1, 8.
- Beck AT, Steer RA & Brown GK (1996) *Manual for the Beck Depression Inventory*, 2nd edn, Psychological Corporation, San Antonio, TX.
- Chan AS, Cheung MC, Tsui WJ, Sze TS, Shi D (2011) Dejian mind-body intervention on depressive mood of community-dwelling adults, A randomized controlled trial. *eCAM* 2011:473961; (1-8).
- Chan CLW, Ho PSY & Chow E (2001) A body-mind-spirit model in health: An eastern approach. *Social Work in Health Care* 34, 261-282.
- Chan CLW, Chan THY & Ng SM (2006) The strength-focused and meaning-oriented approach to resilience and transformation (SMART): A body-mind-spirit approach to trauma management. *Social Work* 43, 9–36.
- Chan CLW, Chan Y & Lou VWQ (2001) Evaluating an empowerment group for divorced Chinese women in Hong Kong. *Research on Social Work Practice* 12, 558-569.
- Chandra PS, Deepthivarma S, Jairam KR & Thomas T (2003) Relationship of psychological morbidity and quality of life to illness-related disclosure among HIV-infected persons. *Journal of Psycho Somatic Research* 54, 199-203.
- Chouk L, Lee PWH, YU ECS, Macfarlane D, Cheng YH & Chan SSC (2004) Effect of Taichi on Depressive Symptoms among Chinese Older Patients with Depressive Disorders: A randomized clinical trial. *International Journal of Geriatric Psychiatry* 19, 1105-7.

D'Silva S, Poscablo C, Habousha R, Kogan M & Kligler B (2012) Mind-body medicine therapies for a range of depression severity: A systematic review. *Psychosomatics* 53, 407-423.

Dossey B (2008) A Theory of Integral Nursing. *Advances in Nursing Science* 31, E52-E73.

Hogan MA (2004) *The Nursing Profession*. In S. Epstein, L. Stagg & R.L. Brinks (Eds.), *Fundamentals of Nursing: Caring and Clinical Judgment* 2nd Ed. St. Louis: Elsevier 1-14.

Hsiao FH, Jow GM, Lai YM, Chen YT, Wang KC, Ng SM, Ho RTH, Chan CLW & Yang TT (2011) The Long-Term Effects of Psychotherapy Added to Pharmacotherapy on Morning to Evening Diurnal Cortisol Patterns in Outpatients with Major Depression. *Psychotherapy and Psychosomatics* 80, 166-172.

Hsiao FH, Lai YM & Chen YT (2009) Installing hope: the efficacy of body-mind-spirit group treatment for Taiwanese female patients with depressive disorders In Lee MY, Ng SM, Leung PPY, Chan CLW & Leung P. (Eds.) *Integrative body-mind-spirit social work* Oxford University Press, Oxford pp. 245-262.

Hsiao FH, Yang TT, Chen CC, Tsai SY, Wang KC, Lai YM, Tsai CJ & Chang WY (2007) The comparison of effectiveness of two modalities of mental health nurse follow-up programs for female outpatients with depression in Taipei Taiwan. *Journal of Clinical Nursing* 16, 1141-1150.

Hsu MC, Moyle W, Creedy D, Venturato L, Ouyang WC & Tsay SL (2009) Use of antidepressants and complementary and alternative medicine among outpatients with depression in Taiwan. *Archives of Psychiatric Nursing* 23, 75-85.

Lee AM, Ho JWC & Chan CLW (2010) Efficacy of psychosocial intervention in improving quality of life and psychological well-being of Chinese patients with colorectal cancer: a randomized controlled trial. *Hong Kong Medical Journal* 16, 20-4.

Lee MY, Ng SM, Leung PPY & Chan LW (2009) *Integrative body-mind-spirit social work: An empirically based approach to assessment and treatment*. The Oxford University Press, New York.

Lee WS, Mancuso AC & Charlson EM (2004) Prospective study of new participants in a community-based mind-body training program. *Journal of General Internal Medicine* 19, 760-765.

Little SA, Kligler B, Homel P, Belisle SS & Merrell W (2009) Multimodal mind/body group therapy for chronic depression: a pilot study. *Explore (NY)* 5, 330-7.

- Liu CJ, Hsiung PC, Chang KJ, Liu YF, Wang KC, Hsiao FH, Ng SM & Chan CL (2008) A study on the efficacy of body-mind-spirit group therapy for patients with breast cancer. *Journal of Clinical Nursing* 17, 2539-49.
- Lorentz M (2006) Stress and psycho-neuro immunology Revised: using mind-body intervention to reduce stress. *Alternative Journal of Nursing* 11, 22-24.
- Mundt CJ, Marks MI, Shear KM & Greist MJ (2002) The work and social adjustment scale: A simple measure of impairment in functioning. *British Journal of Psychiatry* 180, 416-464.
- Nakao M, Fricchione G, Myers P, Zuttermeister PC, Barsky AJ & Benson H (2001) Depression and education as predicting factors for completion of a behavioral medicine clinic. *Behavioural Medicine* 26, 177-84.
- Nedley N (2005) *Depression: The way out*. Ardmore, OK: Nedley publishing.
- Ng SM, Yau KY, Chan LWC, Chan YHC & Ho FYD (2005) The measurement of Body-Mind-Spirit Wellbeing towards multidimensionality and trans-cultural applicability. *Social Work in HealthCare* 41, 33-52.
- Papakostas GI, Petersen T, Mahal Y, Mischoulon D, Nierenberg AA & Fava M (2004) Quality of life assessments in major depressive disorder: a review of the literature. *General Hospital Psychiatry* 26, 13-17.
- Saudia TL, Kinney MR, Brown KC & Young LW (1991) Health locus of control and helpfulness of prayer. *Heart and Lung* 20, 60-65.
- Shapiro D, Cook IA, Davydov DM, Ottaviani C, Leuchter AF & Abrams M (2007) Yoga as a complementary treatment of depression: effects of traits and moods on treatment outcome. *eCAM4*, 493-502.
- Sinha K (2011) Indians are a depressed lot. *The Times Of India* 27 July p. 5.
- Skevington SM, Lotfy M & O'Connell KA (2004) The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial A Report from the WHOQOL Group. *Quality of Life Research* 13, 299-310.
- Sreevani R, Reddemma K, Chan CLW, Leung PPY, Wong V, Chan CHY (2013) Effectiveness of Integrated Body-Mind-Spirit group intervention on the well-being of Indian patients with depression: A pilot study. *Journal of Nursing Research* 21, 178-185.
- Tanyi RA, Berk LS, Lee JW, Boyd K & Arechiqa A (2011) The effects of a psychoneuroimmunology (PNI) based lifestyle intervention in modifying the progression of depression in clinically depressed adults. *International Journal of Psychiatric Medicine* 42, 151-166.

Targ EF & Levine EG (2002) The efficacy of a mind-body-spirit group for women with breast cancer: a randomized controlled trial. *General Hospital Psychiatry* 24, 238-248.

Tsang HWH, Cheung L & Lak D (2002) Qigong as a psychosocial intervention for depressed elderly with chronic physical illnesses. *International Journal of Geriatric psychiatry* 17, 1146-54.

Tsai YF, Wong TKS, Tsai HH & Ku YC (2008) Self-worth therapy for depressive symptoms in older nursing home residents. *Journal of Advanced Nursing* 64, 488-494.

World Health Organization (2006) *World Health Organization Country Cooperation Strategy: India 2006-2011*, Country office for India: New Delhi.

Yang TT, Hsiao FH, Wang KC, Ng SM, Ho RT, Chan CL, Lai YM & Chen YT (2009) The effect of psychotherapy added to pharmacotherapy on cortisol responses in outpatients with major depressive disorder. *Journal of Nervous & Mental Disorders* 197, 401-6.

Table 1: Pre-intervention group comparison of socio-demographic variables

| Socio-demographic characteristic | | Group | | <i>p</i> |
|----------------------------------|--|----------------------------|----------------------------|---------------------|
| | | BMS ¹ (n=56) | TAU ² (n=64) | |
| Mean Age (SD) | | 29.21 (7.60) | 31.03 (7.41) | ⁴ .188 |
| Gender | - Male - Female | 22 34 | 29 35 | ³ .505 |
| Education | - Up to 10th std - 10th std to pre-university - Degree and above | 28 6 22 | 50 7 7 | ³ .001** |
| Marital status | - Single - Married | 24 32 | 19 45 | ³ .133 |
| Area of residence | - Urban - Rural | 23 33 | 18 46 | ³ .136 |
| Mean monthly income (SD) | | 9107.1 (6563.5) | 6140.6 (3773.8) | ⁴ .004** |

¹Body Mind Spirit; ²treatment-as-usual

³chi square test

⁴unpaired t-test

***p* < .01

Table 2: Pre-intervention group comparison of clinical characteristics and outcome variables

| Clinical characteristic and outcome variables | | Group | | <i>p</i> |
|---|-----------------|----------------------------|----------------------------|--------------------|
| | | ¹ BMS (n=56) | ² TAU (n=64) | |
| Suicidal attempts | - None | 49 | 58 | ³ .583 |
| | - Present | 7 | 6 | |
| Previous depressive episodes | - One | 42 | 53 | ³ .293 |
| | - More than one | 14 | 11 | |
| Family history of depression | - Yes | 10 | 5 | ³ .097 |
| | - No | 46 | 59 | |
| Duration of illness “mean (SD)” | | 18.95 (17.87) | 13.45 (9.74) | ⁴ .044* |
| Level of depression “mean (SD)” | | 30.23 (11.80) | 27.69 (12.21) | ⁴ .250 |
| Well-being “mean (SD)” | | 244.82 (73.09) | 246.42 (66.03) | ⁴ .900 |
| Functional impairment “mean (SD)” | | 30.27 (9.07) | 29.98 (8.38) | ⁴ .859 |
| Quality of life “mean (SD)” | | 64.63 (12.02) | 64.73 (11.84) | ⁴ .960 |

¹Body Mind Spirit; ²treatment-as-usual

³chi square test

⁴unpaired t-test

**p* < .05

Table 3: Group comparison of depression, functional impairment, well-being, and quality of life across the time points

| Time of assessment | ¹ BMS group Mean (SD) | ² TAU group Mean (SD) | group x time F-value | <i>p</i> | Partial-eta squared |
|------------------------------|-------------------------------------|-------------------------------------|----------------------------|----------|------------------------|
| Depression | | | | | |
| Baseline (T0) | 30.23 (11.80) | 27.69 (12.21) | 29.87 | <.001** | .206 |
| 1 month (T1) | 14.07 (10.67) | 24.14 (12.50) | | | |
| 2 months (T2) | 9.68 (10.87) | 21.06 (12.06) | | | |
| 3 months (T3) | 8.20 (10.93) | 18.66 (11.98) | | | |
| 6 months (T4) | 7.00 (10.46) | 17.58 (11.90) | | | |
| Functional impairment | | | | | |
| Baseline (T0) | 30.27 (9.07) | 29.98 (8.38) | 23.35 | <.001** | .169 |
| 1 month (T1) | 15.20 (10.35) | 26.38 (9.62) | | | |
| 2 months (T2) | 11.55 (9.89) | 23.48 (9.41) | | | |
| 3 months (T3) | 9.55 (9.73) | 22.13 (9.64) | | | |
| 6 months (T4) | 8.23 (10.14) | 20.09 (9.58) | | | |
| BMS Well-being | | | | | |
| Baseline (T0) | 244.82 (73.09) | 246.42 (66.03) | 48.15 | <.001** | .295 |
| 1 month (T1) | 369.11 (83.60) | 269.17 (69.32) | | | |
| 2 months (T2) | 404.39 (87.30) | 280.84 (71.41) | | | |
| 3 months (T3) | 420.09 (87.28) | 295.41 (74.24) | | | |
| 6 months (T4) | 428.79 (89.12) | 304.80 (74.45) | | | |
| Quality of life | | | | | |
| Baseline (T0) | 64.63 (12.02) | 64.73 (11.84) | 49.18 | <.001** | .300 |
| 1 month (T1) | 89.61 (18.25) | 68.67 (13.22) | | | |
| 2 months (T2) | 95.25 (17.87) | 71.50 (14.06) | | | |
| 3 months (T3) | 98.20 (18.21) | 74.59 (15.67) | | | |
| 6 months (T4) | 100.14 (18.38) | 75.91 (15.50) | | | |

¹Body Mind Spirit; ²treatment-as-usual ***p* < .01