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Review Article

Investigating the effectiveness of self-leadership training base on mindfulness on depression, stress, anxiety and ambiguity tolerance of female nursing students in Iran

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Abstract

Transition to work requires the female students to be compatible with new environments, situations and people that often lead to depression, stress, anxiety and ambiguity. In order to overcome this issue, the concept of mindfulness delivers mental health and welfare notably in depressive and stressful situation as well as feelings of anxiety and concern. Thus, an endeavor in this paper has been created to investigate the results of mindfulness-based self-leadership training (MBSLT) on stressful, depressive, concerned and ambiguous feeling by comparison the intervening and controlling group. The intervention was conducted as a quasi-experimental design. This research was conducted on 34 female undergraduate nursing students of Mashhad University of Medical Sciences in the academic year of 2022-2023 in Iran and with available sampling. All nursing students received 10 weekly two-hour group training sessions consisted of MBSLT techniques. Findings demonstrated significant effects (MBSLT) on reducing depression, stress and anxiety and improving ambiguity tolerance in the intervention group. MBSLT has been suggested as an effective training internvention for nursing students.

Keywords: nursing students, mindfulness-based self-leadership training, depression, stress, anxiety, ambiguity tolerance.

Introduction

According to the study performed in 2015 by the Mental Health Survey of the Adult Population, adults claimed to experience stress, anxiety and depression on their daily activities (Noorbala et al., 2017). Hence, while negative emotion has become an inevitable part of modern life, it is more prevalent among university students. In Iran, almost 10% of university students encounter stress, anxiety and depression (Nami, Nami and Eishani, 2014). Academic demands, social challenges and uncertainty about future are among the most important factors increasing levels of stress (Deasy et al., 2014). Moreover, students who grew up in families lacking financial stability are more likely to show symptoms of depression and anxiety (Eisenberg et al., 2007), indicating that financial difficulties are correlated with higher rates of the mental health problems (Beiter et al., 2015). While mild level of stress and anxiety can have a positive influence on academic outcomes (Bamber and Schneider, 2016), the huge negative impacts of depression, anxiety, and stress reveal the importance of investigating their outcomes among college students. For example, depression is related to detrimental behaviors such as smoking, poor diet, lack of exercise, poor sleep habits, and noncompliance is related to medical treatment recommendations (Doom and Haeffel, 2013). They even have a bad effect on memorial, something requires concentration, finding answers to problems, performance of academy and at last will result in unwellness, depression, avoidance, rumination and any of alternative neurotic or physical issues. To prevent stress, mindfulness strategies have been used successfully (Johnstone et al., 2016). In fact, one among technicalities that applied for preventing and treating stress is mindfulness. Mindfulness is a quality of consciousness which identified through non-judgmental focused awareness of present moment experiences, thoughts and emotions (Ayoko, 2023). This can be achieved by systematic training and practice, primarily through meditation (Daya and Hearn, 2017). In this research, the effectiveness of the educational intervention was obtained by examining the statistical results and comparing the pre-test with the post-test in two control and

experimental groups. Also, the effect of the group was checked by controlling the effect of the pre-test between the two control and experimental groups using covariance analysis.

However, although attention few empirical studies have been performed on the subject of mindfulness, mindfulness in university students has been rarely investigated (Pierdomenico et al., 2017). In addition, the self-leadership has received little attention in the academic achievement context. As a result, the outcomes and consequences of the self-leadership training in order to achieving academia domain have not been sufficiently and experientially investigated (Sampl et al., 2017). To help students, it seems beneficial to understand the ways decreasing depression, anxiety and stress symptoms by the use of mindfulness-based self-leadership training. Kabat-Zinn (2003) urged that mindfulness is not solely considering the purpose however is additionally considering the non-judgmentally and also the current moment. Non-judgmental consciousness references to the consideration of present moment expertise in stead of making an idea of it (Bamber and Schneider, 2016). Several mindfulness-based intervention studies indicate implementing mindfulness practice to enhance health-related issues of students over a fixed period of time (Ratanasiripong et al. 2015). Psych educational training methods of mindfulness have shown success in addressing the mental health in people with chronic physical health problems such as diabetes (Gregg et al., 2007), and the stress associated with having cancer (Ledesma and Kumano, 2009). On the other hand, Self-leadership refers to the process of self-influencing that answers the specific questions to achieve specific goals: what has to be done, how it has to be done, and why it has to be done (Manz, 1991). Furtner et al. (2012) introduced self-leadership training to the academic context and revealed that self-leadership is a learnable skill. Neck and Houghton (2006) outlined three important parts of self-leadership as 1) strategies for focusing on the behavior that contains setting for self-goal, , self-punishment, self-reward, observing and cueing yourself ; 2) strategies for constructive idea pattern together with visualization, talk to yourself and beliefs assumptions and evaluations; and 3) strategies in terms of natural reward that specialize in inherent motivation. Self-leadership and mindfulness focusing on regulation self powerfully and are taken into account as useful approaches for enhancing performance and stress resiliency (Sampl et al., 2017). Lucke and Furtner (2015) inquired the results of self-leadership training on the context of military and figured out that self-leadership lead to reduce strain and cure psychological feature and physical performance of troopers. Mindfulness refers to an internal resource that already exists, not as something to get or to acquire (Center for Mindfulness, 2014). Mindfulness interventions represent potentially useful strategies to develop skills and insights related to the abilities to cope with stress (Johnstone et al., 2016). Mindfulness has some core constructs. Mindfulness has been recently classified as trait, state or either. Brown and Cordon (2009) explicit that trait mindfulness demonstrates the essence of an individual's everyday experiences. They also expressed that state mindfulness references to the incited condition of mind happens throughout and forthwith once meditation. Moreover, Kiken et al. (2015) stated that if each of trait or state mindfulness are deal with changes in distress and state mindfulness, they are negatively associated with the distress once examined independent of trait mindfulness. Another study indicated a reduction in serum cortisol as a result of mindfulness training (Turakitwanakan et al., 2013) suggesting that mindfulness can reduce stress and distress, as well as reducing the risk of diseases arising from stress (Daya and Hearn, 2017). It is of particular importance when it comes to culture and international companies, because in managing risks, problems often arise due to ignoring risks associated with cultural issues. Hence, the ability to manage cultural issues is one of the greatest challenges of companies operating in an international environment (Rodríguez-Rivero et al., 2018). Mindfulness has been detected to be involved in improving psychological functions, and it resulted in decrement of suffering; it has been presented as a vital prognosticator of students' depression in nursing (Baer, 2009; Song, 2011). Researchers have also found moderate symptom improvement for anxiety and depression symptoms using mindfulness approaches (Goyal et al., 2014). In a feasibility study of an eight weeks mindfulness intervention for adults and adolescents with ADHD, mindfulness improved attention, mood and self-management skills, while reducing stress (Zylowska et al., 2008). Literature review suggests that mindful individuals are able to reduce sympathetic nervous system arousal when distressed, resulting in a greater capacity for emotional regulation (Keng et al., 2011). Mindfulness influences on mood (Brown and Ryan, 2003) and brings up efficacy of self (Phang et al., 2015), improvement of cognition and performance (Zenner et al., 2014). In marketing, it is of interest to practitioners as well as researchers to understand how different levels of mindfulness affect marketing efforts; because highly mindful consumers lead to highly involved, attentive and aware consumers (Ndubisi, 2014). In this paper, negative emotions include depression, stress and anxiety. Depression is identified as a factor that cause to social issues or suicide (Song and Lindquist, 2010). While anxiety is a generalized mood condition that occurs without an identifiable triggering stimulus, many symptoms of depression include persistent sad, anxious or empty feelings, feelings of hopelessness, feelings of guilt, worthlessness and/or helplessness, irritability, restlessness, and loss of interest in activities or hobbies once pleasurable (Johnstone et al., 2016; Wahed and Hassan, 2017).

Stress is a kind of perception that a scenario or event someone encounters exceeds overcoming resources (Lazarus and Folkman, 1984). It is the main psychosocial aspect that will have an effect on the performance of academy and sense of well-being in students (Jimenez et al., 2010). Stress is a common experience among adolescents (Chandra and Batada, 2006). Unmanageable stress in adolescence can come from myriad sources including rapid socio emotional changes (Kendall and Peterman, 2015), identity development and autonomy of choices (Cockerham, 2005), mounting pressure of school performance and responsibilities (Hussain et al., 2008). Adolescent stress levels have been associated with risky sexual behavior (LaRue and Herrman, 2008), smoking, substance abuse, self-harm (Brunner et al., 2007; Gould et al., 2003), and poor eating habits (Cartwright, 2003). However, distressed teens are at higher risk for anxiety disorders (Chandra and Batada, 2006), depression (Kendall and Peterman, 2015), behavioral problems and suicide (LaRue, 2008). Stress leads to anxiety if it is not effectively treated (Hughes, 2005; Kang et al., 2009). Anxiety is an ambiguous emotion that is worsened when individuals experience extended, unresolved stress or multiple stressors (Lazarus and Folkman, 1984). Mild levels of anxiety can improve efficiency and intellectual functioning. However, high levels of anxiety are harmful to academic outcomes (Bamber and Schneider, 2016). People with anxiety disorders also report a weak quality of life when they compared themselves to people without high anxiety (Barrera and Norton, 2009). Emotion-oriented confronting styles has been influences on the anxiety that consist of, Self-fascination, emotional responses and fantasizing reactions. Therefore, it is possible that an adaptative confronting program like mindfulness-based stress reduction (MBSR) program might diminish stress, anxiety and depression (Shikai et al., 2009; Warnecke et al., 2011). The definition of tolerance of ambiguity receives the essence of the line of research spurred by Frenkel-Brunswik (1949), who first stated tolerance of ambiguity as an individual difference variable. Tolerance of ambiguity refers to the attitude to perceive ambiguous situations as desirable (Budner, 1962). While attitude as an overall evaluation describes an individual likes or dislikes of an object, it does not tell how strong the attitude is (Yang and Unnava, 2016). However, to have a better insight about this attitude, McLain (1993) listed the contextual meaning of ambiguity and defined the construct as a range, from rejection to attraction, of reactions to stimuli perceived as unfamiliar, complex, dynamically uncertain, or subject to multiple conflicting interpretations. Others have the same sought to refine and reconsider the construct, yet the core definition remains consistent (Herman et al., 2010). In recent years, mindfulness has received considerable attention as one amongst the techniques applied for the

stress treatment and stress interference. By reviewing the results of mindfulness meditation, Bamber and Schneider (2016) listed 57 studies on the effectiveness of mindfulness meditation in reducing stress and anxiety in college students. 33 out of 40 and 25 out of 34 studies showed significant decreases in anxiety and stress, respectively. Weinstein et al. (2009) conducted a negative significant relationship between perceived stress and its succeeding anxiety with trait mindfulness. Indeed, those who have high level of trait mindfulness perceive low level of stress in comparison with those who have low level of trait mindfulness. Furthermore, it was proved that trait mindfulness is related to well-being, as well as a reduction in anxiety. Jimenez et al. (2010), Ghorbani et al. (2010) and Masuda & Tully (2012) reported those who have high level of trait mindfulness are more resisted against the stress, have a particular psychological flexibility, and have diminished levels of psychological distress and anxiety. Therefore, there is presumably a moderate correlation between stress and trait mindfulness which is appended as a covariate (Shapiro et al., 2011). Pierdomenico et al. (2017) revealed that poor outcomes for distressed students may be reduced with mindfulness-based interventions. Sampl et al. (2017) represented considerable effects on mindfulness, self-leadership, self- academic effectiveness, and improving the academic performance. Moreover, these results demonstrated that MBSLT cause to decrease the test anxiety within the involving group in comparison with the control group over time. The results show the high potential of mindfulness and self-leadership combination in order to expand a healthy self-regulatory method of
achieving accomplishment connected objectives and succeeding in academic environments with high level of stress.

McConville et al. (2017) proved that mindfulness based interventions decrease stress, anxiety and depression and improve mindfulness, mood, self-efficacy and empathy in health profession students. Hofmann and Gómez (2017) also stated that mindfulness-based interventions have shown efficacy in reducing anxiety and depression symptom severity in a broad range of treatment-seeking individuals. Therefore, the following four hypotheses are developed:

H1: Mindfulness-based self-leadership training has a significant negative impact on depression.

H2: Mindfulness-based self-leadership training has a significant negative impact on stress.

H3: Mindfulness-based self-leadership training has a significant negative impact on anxiety

H4: Mindfulness-based self-leadership training has a significant positive impact on ambiguity tolerance.

Methods

Study 1

Design and sampling

The first study aims to show that mindfulness-based self-leadership training has a significant negative impact on negative emotions. The current research method was quasi-experimental. To achieve this goal, a pre-test-post-test design was carried out. In this research, convenient method was used for sampling, but placing people in two experimental and control groups was done with a simple random method. The intervention cluster took part in MBSLT course during a 10-week; the other cluster included a wait-list (WL) control cluster. None of the scholars in either cluster had been exposed to MBSLT antecedently. Participants were between the ages of 18 and 25 and had no physical contraindications for sport. Moreover, among the past six months they had no ordered meditation and yoga exercise; and no psychiatry symptoms currently. Sample size specified through applying G*power three program that enables ameliorated effecct size calculators (Faul, Erdfelder, Lang and Buchner, 2007). This eventuated during a minimum variety of subjects for learning the results of intervention. The specified sample size was seventeen in each group. Furthermore, significance level of study, effect size and power is equals to 0.05, 80 and 80%, respectively. Respondents including 10.9% of student in nursing and every cluster of seventeen was randomized (2 participants lower than the required sample size). Two students were put aside based on the idea of seventeen students for the MBSR cluster. They might not notice time or take the category at the selected time to participate during this program. It should be noted, within the MBSR cluster, one respondent recede for private reasons after the intervention and one was recede as a result of irregular attend to the intervention session. In addition, within the WL cluster, two students did not follow-up in eight weeks. Thus, the analysis was conducted based on the fifteen respondents within the WL cluster and fifteen respondents within the MBSR cluster.

Data collection and procedures

The intervention was done in the form of group training and in the classroom. The students were aware of the purpose of the study and the duration of the study. Subjects were told that they could withdraw from the study at any time. The students were told that in the form of the questionnaires, the names of the participants are not revealed and instead, nicknames and serial numbers are used. All confidentiality procedures of students' secrets and information were applied correctly. Written informed consent was obtained from all participants in the research. All research results were expressed honestly, accurately and completely. The research method was not in contradiction with the social, cultural and religious values of the society. All ethical standards and matters related to maintaining the safety and health of the respondents were observed based on the principles of the Ethical Codes in the research. The consequences of a ten-week mindfulness -based self-leadership training (MBSLT) in this study on stress, anxiety, depression and mindfulness were appraised via a questionnaire-based test. Students had the chance to join up for the study by finishing a questionnaire form that coexisted as the initial measuring purpose (T1). The questionnaire form enforced stress, anxiety and depression scales. Once the primary assessment purpose at T1was finished, respondents were indiscriminately allotted to either a control cluster (waiting list) or a training cluster (MBSLT cluster). Respondents of the MBSLT cluster practiced throughout a set amount of ten weeks, whereas the respondents of the control cluster did not practice. Once the study was done, the control cluster was advised that teams were apportioned based on the higher level of attendance in-group action and the higher level of practice as a later purpose. Once the practice or waiting period was completed, all respondents were recalled once more to take part in an exceedingly second assessment (T2) by finishing the similar questionnaires as employed in T1. So to replicate the vital variables as closely as attainable, T2 passed at the end of the semester and throughout the examination period. The scholars were advised in terms of the aim of the study, duration of study period, the optional nature of course and the possibility of withdrawing course at any time. It absolutely was emphasized that taking apart during this course of study was not a part of the university program schedule. It conjointly was clarified that the questionnaire form employed in this study would not reveal the name of the student; instead of that it would use pseudonyms and serial numbers. All respondents presented written consent letter.

Instrument of Research

Depression Anxiety Stress Scales (DASS-21) displays the temporary 21-item version of the Great Depression Anxiety Stress Scales. DASS could be a self-report of state negative effects during one- week, which expanded with the precise aim of achieving most distinction between the emotive syndromes of tension, anxiety and depression. Participates highlighted the extent that they seasoned every of the symptoms delineated within the items throughout last week on a 4-point

scale between zero (did not apply to me at all) and three (applied to me considerably, or most of the time). The 21-item version was expanded through choosing the best loading things from every scale of the initial 42-item version of the DASS, whereas conjointly progressing to retain coverage of the total symptom content of every of the 3 emotive states (Szabó, 2010). The DASS-21 factor structure is constant and its scales have discriminant validity, sensible convergence and high inner consistency in each nonclinical and clinical samples and in numerous ethnic teams of adults (Henry and Crawford, 2005; Norton, 2007). In this study, the reliability coefficient of Cronbach's alpha was computed as 0.76. Mindfulness-Based Self-Leadership Training (MBSLT): The MBSLT development is predicated on a mix of established mindfulness components of the MBSR methodology (Kabat-Zinn, 2013) and also according to the suggestions of Neck and Manz (2013) about self-leadership training. The MBSLT sessions themselves were constructed in a process dynamic way that became more exam-specific as the examination period approached closer. The sessions focused on diverse aspects depending on the temporary distance to exams. Session 1, Mindful self-targeting, concentrated on fundamental mindfulness exercises in terms of self-observation and perception and goal-setting methods. Within the opening move, respondents be aware how to define and attain their academic objectives in a mindful way. In the second session, Application in way of ordinary life, participants were educated to mind their objectives and day to day mindfulness exercise in terms of training a real-life through self-reminding and self-cueing methods.

Attention to the people's assumptions has been done in Session 3 which handled self-reflexive processes. The self-appraisement of presumptions and constructive opinions was increased through consideration and notification rising mindfulness practices. In addition, mindfulness practices were continual to enhance participants' relaxation proficiencies. In Session four, Self-efficacy of mindfulness, the ability of participants was stressed to cater the academic failures in an acceptable and mindful way.

Students learned to require associate angle of nonjudgmental understanding of the momentum of ideas and perceive that ideas come back and go. Participants with the help of visualization can improve their self-efficacy regarding their academic objectives. Participants were ready to perceive their own daily advance (about learning success, anxiety and stress) via a daily record in the way of mindfulness. Students learned to configure themselves for examination preparation via setting their learning plan and reminding themselves every week. Session 5, conformity of Mindful behavior, constructed based on the experiences in terms of self-observation from the previous sessions. Though being responsive to their prevalent progress, respondents learned to conform and make their learning behavior for succeeding in their self-set of objectives. Inherent incentive was increased through associate and adequate use of (natural) self-rewarding methods. Preceding mindfulness practices should be perennial for deepening the awareness of reward experiences. Session 6, preparation for mindfulness test, this stage brought the capability for participants to separate themselves from thoughts; for example stressful thoughts regarding failure in examination. Mental image of rewards and succeeding in the exams increased incentive. Self-instructions assisted students to concentrate on the exam and configure themselves to get ready for the examination. During this method, mindfulness expedited the appliance of focusing policies. Again, mindfulness was applied to diminish the stress that caused due to the academic stressors. Before students begun their learning session they learned to execute practices in terms of mindful relaxing. Session 7, compulsive strategies in in the field of Mindfulness, restricted the deepening of dissolution from stressful thoughts and strategies in terms of mindful relaxing. With the assistance of the mindfulness proficiencies and trained self-leadership, contributors learned to reinforce their own compulsive strategies for examination and also under the pressure, for instance, to re-concentrate via self-talk, and mindful respiration for relaxation. Behavior was visualized in order to reinforce self-efficacy of contributors in the prosperous examination.

Session 8, in relaxing thoughts, the main concentrate was on the application of productive thought patterns, because this session time was close to the stressful period of exams. Students recognized stressful thoughts regarding their examinations. The mindfulness practices of dissolution from thoughts increased the effects; for example holding thoughts pass and resulting

in soothing effects. In Sessions nine and ten, Transfer to diurnal life one and two, the main concentrate was on the iteration of self-leadership and strategies in terms of mindfulness and proficiencies trained beforehand. Contributors knew how to transfer the proficiency into the way of life and also regarding the situation that they have an exams.

Results

Data was analyzed by SPSS-28 software (SPSS Inc., Chicago, Illinois, USA). Covariance Analysis (ANCOVA) was applied for the comparision of stress, anxiety and depression scores among the both WL and MBSLT groups. Due to the socio-demographic variables of students in the field of nursing, there have been no important variations among the both WL and MBSLT groups. All contributors in every cluster were females. The common age was 19.5 (SD 2.0) within the WL cluster and 19.6 (SD 1.7) within the MBSLT cluster. Students mentioned particular religious affiliation; 17.9% of WL cluster and 15.4% of MBSR cluster had no religious beliefs. Standard deviation and average values of the studied variables exposed to experiment (WL and MBSLT cluster) and control groups are given in Table one for every of the study stages. standard deviation values in the intervention and control groups

Instrument	Waiting list group				Intervention group			
	Pre		Post		Pre		Post	
	M	SD	M	SD	M	SD	M	SD
Depression	24.26	6.54	23.46	5.99	21.8	6.78	12.26	5.52
Anxiety	18.26	5.90	18.06	5.24	16.93	5.83	11.13	4.10
Stress	25.06	7.55	23.06	5.87	25.20	7.43	14.00	7.08

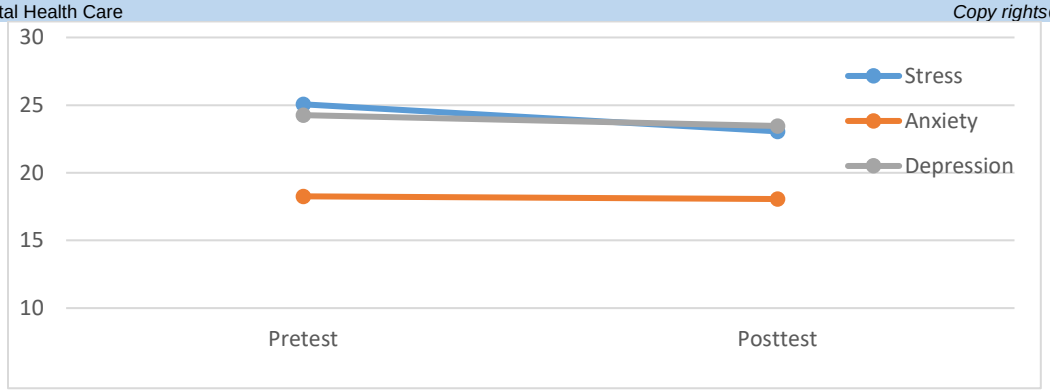

Figure 1 Study 2 average values plot (Waiting list group)

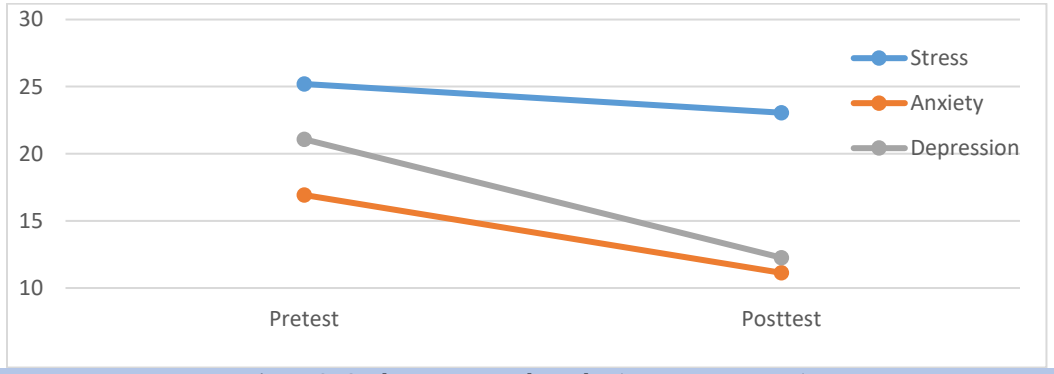

Figure 2: Study 2 average values plot (Intervention group)

Before analyzing the research hypotheses, the covariance analysis assumptions were reviewed. The normal distribution of scores was the first test assumption (Kolmogorov Smirnov) in which, regarding the Z statistic was the indicator of the nonparametric test (K-S). Results indicated that the test was not significant at the level of 0.05 and the distribution was normal. The second assumption was the homogeneity variances analysis (Levine) for stress, anxiety and depression variables, showing the homogeneity of group variances. The homogeneity test of regression slope was the third assumption, indicating insignificance of the interaction of covariate (pre-tests) and dependent (post-tests) variables at the operating levels (test and control groups). The regression homogeneity assumption was satisfied based on the Pillais Trace of the regression slope. The fourth assumption of Multicollinearity testing indicated the avoidance of Multicollinearity.

Variables	Source	Sum of Squares	df	Mean Square	F	Sig	Partial Eta Squared	Observed Power[b]
Depression	Pretest	2.169	1	2.169	0.063	0.804	0.002	0.057
	Group	890.873	1	890.873	25.906**	0.001	0.490	0.998
	Error	928.497	27	34.389				
Anxiety	Pretest	273.391	1	273.391	21.256**	0.001	0.440	0.993
	Group	286.577	1	286.577	22.281**	0.001	0.452	0.995
	Error	347.276	27	12.862				
Stress	Pretest	687.369	1	687.369	37.300**	0.001	0.580	1.000
	Group	628.524	1	628.524	34.106**	0.001	0.558	1.000
	Error	497.564	27	18.428				

**p < 0.01 *p < 0.05
a. R Squared= 0.504 (Adiusted R Squared=0.467)
a. R Squared= 0.646 (Adiusted R Squared=0.620)
a. R Squared= 0.724 (Adiusted R Squared=0.703)

Table 2 ANCOVAs for waiting list group compared to the intervention group

ANCOVA was applied to evaluate the treatment effects among groups, in this way pre-test scores has been used as covariates. The results of the covariance analysis (Table 2) on the post-test scores of depression, anxiety and stress indicated that after modifying the pre-test scores, there was a group depression ($F_{(1,27)}$=25.906, P<0/0001, Partial η^2=0.490), anxiety ($F_{(1,27)}$=22.281, P<0/0001, Partial η^2=0.995), and stress ($F_{(1,27)}$= 34.106, P<0/0001, Partial η^2=0.558). A statistically significant difference was also found between the groups.

Discussion

The study one's main question was whether or not a mindfulness primarily based on

the intervention might manufacture significant changes in depression, anxiety and stress as a psychological variables between the bachelor nursing women students. Results demonstrated that mindfulness training led to the great diminution in stress, anxiety and depression levels regarding the control cluster. This study indicated great reduction in negative emotional effects through self-leadership and mindfulness integration into one training. The MBSLT was used with success within the educational context and nursing women was chosen as a pilot intervention for this study. Within the main hypothesis, the MBSLT cluster demonstrated considerable reduction regarding negative emotional effects in comparison with the control cluster. The findings are compatible with the antecedent studies that offered the usage of the self-regulative interventions in order to help business students for managing depression, anxiety and stress (Bohecker et al., 2016; Hofmann et al., 2010; Furtner et al., 2012).

Study 2

Design and sampling

The purpose of the second study is to find if Mindfulness-based self-leadership training has a positive significant impact on ambiguity tolerance. Two-clusters was used for randomized control and posttest design was also applied for this purpose. The intervention (MBSLT) cluster took part in MBSLT course for ten-week; the other cluster included a wait-list (WL) control cluster. Respondents met the inclusion variable of irregular yoga exercise and meditation among the past six months; no prevalent psychiatric symptoms. Moreover, they should be between the ages eighteen to twenty five and have no physical restriction for exercising. Sample size was employed by G*power 3 program which provides improved effect size calculators (Faul, Erdfelder, Lang and Buchner, 2007).

The required sample size was seventeen in each cluster. On the idea of seventeen students for the MBSR cluster, 2 students were excluded since they might not realize time or take the course at intervention the selected time to contribute during this program. One respondent recede for private reasons after the and one was recede because of not attending intervention session for over two times within the MBSR cluster. 2 students in WL cluster did not pursue in eight weeks. Therefore, the

analysis was finished with fifteen contributors within the MBSR cluster and fifteen contributors within the WL cluster. It should be noted, within the MBSR cluster, one respondent recede for private reasons after the intervention and one was recede as a result of irregular attend to the intervention session. In addition, within the WL cluster, two students did not follow-up in eight weeks. Thus, the analysis was conducted based on the fifteen respondents within the WL cluster

and fifteen respondents within the MBSR cluster.

Data collection and procedures

The results of mindfulness-based self-leadership training (MBSLT) during 10 week on Tolerance for Ambiguity were assessed through the questionnaire-based test. Respondents were randomly allocated to either a control group (waiting list) or a MBSLT group (training group). During a hard and fast course of ten weeks, respondents of the MBSLT cluster trained, whereas respondents of the control cluster not trained. The control cluster was knowing that teams were parted because of the high level of presence and training they received at a later purpose once the study was done. All contributors filled out the questionnaire form when the training course was completed or waiting period was finished. The scholars were knowing of the aim of study, the study length, whether or not they were liberated to settle on participation, and they may recede the course at any time. It absolutely was stressed that taking part during this study was not a component of the university programme. It was additionally explained that the questionnaire form applied in this study would not reveal the name of the participant, however their pseudonyms and serial numbers would use instead of that. All respondents prepared a consent letter.

Instrument of Research

Tolerance for Ambiguity Scale (TAS): Herman et al. (2010) stated that "measurement challenges" are often cited to explain conflicting findings regarding Tolerance for Ambiguity (TA). This motivated the authors to develop a psychometrically sound measure of TA, contextualised to cross-cultural contexts. They presented the Tolerance for Ambiguity Scale (TAS), and described it as "a conceptually clear, internally consistent assessment tool". It included a 12–item questionnaire with five-point Likert scale. The authors used a Principal Components Analysis (PCA) and found four distinct dimensions which were labeled as: i) valuing diverse others; ii) change; iii) challenging perspectives; and iv) unfamiliarity. Internal consistency of the four dimensions was not sufficiently robust to allow separate use, but the Cronbach's alpha coefficient for the overall measure was acceptable at 0.73. Researchers described the measure of TA as "a unitary but multifaceted construct" (Herman, Stevens, Bird, Mendenhall and Oddou, 2010). The TAS was pilot-tested on 30 nursing students. A subsequent Cronbach's alpha analysis of the TAS scale revealed that one item dragged the overall alpha value up to 0.77. When removed, the Cronbach's alpha was computed as 0.75 for the pilot test. In addition, Dewaele and Wei (2013) investigated the validity and reliability of TAS and reported that the psychometric characteristics of the questionnaire were appropriate (Dewaele and Wei, 2013). Mindfulness-Based Self-Leadership Training (MBSLT): MBSLT was supported a mix of established mindfulness components of the MBSR technique (Kabat-Zinn, 2013) and suggestions of Neck and Manz (2010) and Neck and Manz (2013) regarding self-leadership training. The MBSLT sessions were made themselves in a dynamic process that convert additional exams to simulate that the examination range is near. The sessions focused on totally several aspects based on the temporary distance to exams.

Results

Data analysis

Data was analyzed by SPSS-20 software (SPSS Inc., Chicago, Illinois, USA). T-tests was employed to compare the pretest of TA dependent variable between the two groups.

Regarding the socio-demographic variables of nursing students, there were no significant differences between the two groups of MBSLT and WL. All participants in each group were females. The average age was 19.6 (SD 1.7) in the MBSLT group and 19.5 (SD 2.0) in the WL group. Participants reported specific religious affiliation; 15.4% of MBSR group and 17.9% of WL group had no religious believes. The avaerage and standard deviation values of the studied variables corresponding to the experimental (MBSLT group and WL group) and control groups are presented in Table 3 for each of the study phases. Due to the socio-demographic variables of students in the field of nursing, there have been no important variations among the both WL and MBSLT groups. All contributors in every cluster were females. The common age was 19.5 (SD 2.0) within the WL cluster and 19.6 (SD 1.7) within the MBSLT cluster.

Students mentioned particular religious affiliation; 17.9% of WL cluster and 15.4% of MBSR cluster had no religious beliefs. Standard deviation and average values of the studied variables exposed to experiment (WL and MBSLT cluster) and control groups are given in Table one for every of the study.

Instrument	Waiting list group		Intervention group	
	Post test		Post test	
	M	SD	M	SD
Ambiguity	38.8	10.69	29.53	11.89

Table 3 Means and standard deviation values in the intervention and control groups

Before analyzing the research hypotheses, the t-test analysis assumptions were reviewed. The normal distribution of scores was the first test assumption (Kolmogorov Smirnov) in which, the Z statistic was the indicator of the nonparametric test (K-S).Restults indicated that test was not significant at the level of 0.05 and the distribution was normal. The second assumption was the homogeneity analysis of variances (Levine), showing the homogeneity of group variances.

		t	df	Sig.	Mean Difference	Std. Error Difference	95% Confidence Interval	
							Lower	Upper
Ambiguity	Equal variances assumed	-2.244	28.00	0.033	-9.2666	4.1289	-17.72	-0.80
	Equal variances not assumed	-2.244	27.68	0.033	-9.2666	4.1289	-17.72	-0.80

Table 4 Independent samples test

The results of the independent t-test (Table 4) indicated that, compared to the WL group, the TA of students with MBSLT group difference was significant. Independent t-test indicated that the difference between the conditions was significant (P<0.033, d = 28, t = -2.244).

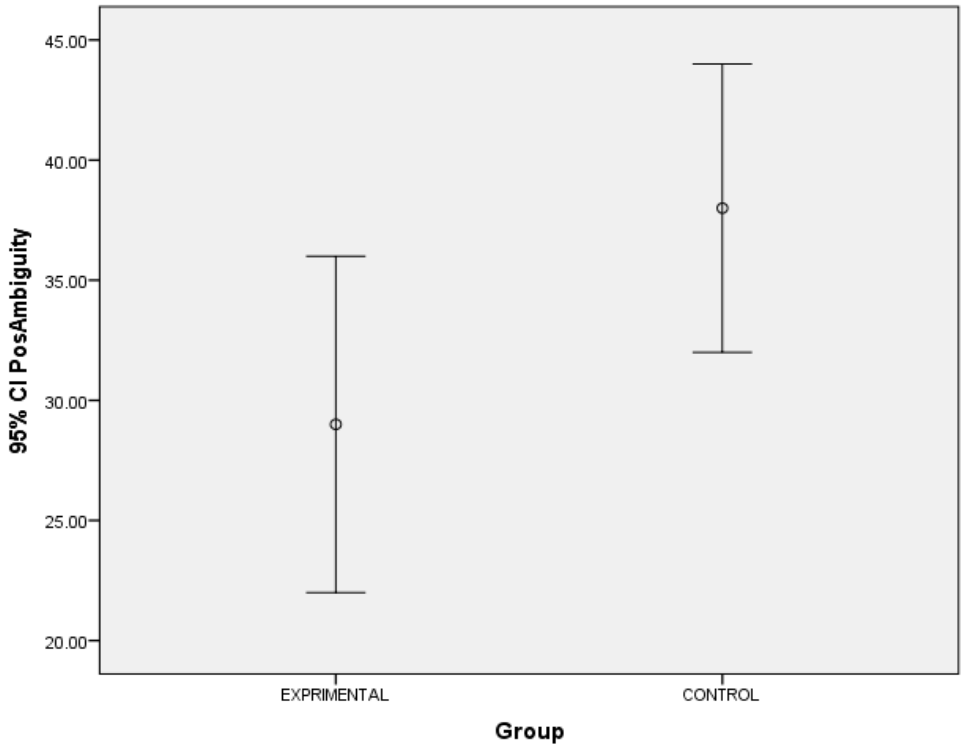

Figure 3: Errors linear chart of two independent groups in tolerance of ambiguity

Discussion

The principle question of this study was whether or not a mindfulness-based intervention may turn out significant alteration in psychological criteria (ambiguity tolerance) among nursing students of bachelor of education. Results indicated that mindfulness training caused a significant reduction in levels of ambiguity tolerance in relation to the control group.

This study indicated significant TA enhancing through integration of self-leadership and mindfulness into one training. MBSLT was used on nursing women students as a pilot for intervention within the academic context.

Within the main hypothesis, the MBSLT cluster demonstrated significant TA enhancing in comparison with its control cluster. The results are compatible with previous studies that advised the application of self-regulative interventions for helping nursing students to assist tolerance of uncertainty (Bohecker et al., 2016; Hofmann et al., 2010; Furtner et al., 2012).

Conclusions And Research Implications

Results of this study are in relation with previous studies performing mindfulness-based interventions on the university students. For instance,

Kang et al. (2009) conducted that the experimental cluster indicated a statistically great reduction within the criteria of anxiety and stress, however did not include depression. Moreover, Warnecke, Quinn, Ogden, Towle and Nelson (2011) conducted statistically great reduction of stress and anxiety in the mindfulness cluster relative to the control cluster after analyzing the answers of 66 medical students. These findings offered that a mindfulness-based training assists nursing students find out how to direct uncertainty states and adverse emotions. The findings also suggest MBSL Training to navigate the ambiguous and unknown landscape of new environments. This is where MBSLT seemed to provide a tool beyond skill development. For example, the mindfulness practice of intentional awareness and noticing without judgment served to create a way for increased knowledge and reflexivity of a part of the participants. Attention to the current state, provide the possibility for emerging nay of interior incident and with no automatic reaction, enable to take some distance from those emotions, thoughts, or adverse physical impressions, and affirmative larger psychological flexibility (Langer et al., 2010). Negative sensations' reduction in college students incorporates an obvious effect on sickness hindrance and therefore promoting mental and physical health. This is imperative for professionals who dealt with high levels of depression, stress, "burnout", absence, etc..; like the case of lecturers (Extremera et al., 2010). Maladaptive handling stress and adverse emotional states not solely have an effect on the mental and physical health of lecturers however those of their students and their families respectively (Manas, Franco and Justo, 2011). In return, the mindfulness positive effects recommend the relevancy of this kind of intervention within the educational context, as a part of the university programme and school students (Manas, Franco, Cangas and Gallego, 2011). More study is required to deepen the awareness exactly within the field of mindfulness that mentioned within the introduction. Also, it could be involved in several therapies and, thus, has shared components to different forms of intervention. Among the criteria that restrict the exterior credibilsity of the results, the tiny size of the sample may be observed. Furthermore, there was no follow-up accomplished to evaluate whether or not the results were preserved over time. On the opposite hand, the same as previous studies, no particular measures of mindfulness or acceptance were considered. This might have permitted to analysis the meditational role of these criteria within the results. Conducting the same study for a larger sample and unifying psychophysiological criteria that complete the results obtained through self- administered questionnaires will offer a substantial chance for future study.

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