



A Mindfulness Based Intervention to Enhance University Student Wellbeing in Saudi Arabia

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Abstract: The Mindful Jeddah Training Program (MJTP) is a culturally and religiously inclusive three-week mindfulness-training pilot program designed to help university student's deal with everyday stress, anxiety and depression while increasing levels of life satisfaction. A quasi-experiment was designed to compare the effectiveness of the MJTP with a control condition. Twenty-six female participants from a private university in Jeddah, Saudi Arabia were randomly assigned to treatment or control group participation. A comparison of group means showed that the MJTP group had marginally decreased levels of stress, anxiety, depression and increased mental wellbeing and mindfulness. Yet, a dependent t-test showed that the MJTP group had statistical significantly increased levels of life satisfaction as well. An independent t-test between the two groups revealed no significant results. The control group showed decreased mental wellbeing while slightly increasing depression and anxiety which reinforces the idea that analyzing and over-thinking are detrimental to psychological health. The MJTP can be an effective way to meet wellbeing aims in Saudi Arabia and in a manner that is culturally and religiously congruent.

ملخص البحث : برنامج جدة للتأمل الذهني، هو برنامج للتدريب الذهني يراعي الاعتبارات الثقافية ويمتد على مدى ثلاثة أسابيع معتمد على برنامج تدريب ذهني آخر مدته ثمانية أسابيع للاسترخاء والتخفيف من حدة التوتر (Kabat-Zinn, 2013). طور هذا البرنامج لمساعدة طلاب الجامعة على التعامل مع ضغوطات الحياة اليومية والتوتر والاكنتاب ولتعزيز رضاهم عن جودة المعيشة. برنامج التفكير العميق، هو برنامج تدخل مقارنة صمم لمساعدة الطلاب على التفكير الجاد في ماضيهم ومستقبلهم على عكس ما تنص عليه مبادئ التأمل الذهني. وقد تم تصميم تجربة تقريبية ذات دلالة إحصائية لمقارنة الفاعلية بين البرنامجين أي برنامج جدة للتأمل الذهني وبرنامج التفكير العميق. أشركت في هذه التجربة 26 طالبة من الإناث من جامعة خاصة في مدينة جدة، المملكة العربية السعودية ووزع عشوائياً على البرنامجين. أظهرت المقارنة أن حدة التوتر والضغط النفسي والاكنتاب لدى المشاركات في برنامج جدة للتأمل الذهني قد خفت بشكل طفيف وكذلك تحسنت صحتهن النفسية وارتفع وعيهم الذهني قليلاً، إلا أن تجربة أخرى ذات دلالة إحصائية أجريت على نفس المجموعة أظهرت تحسناً ملحوظاً في تحسين جودة المعيشة لديهن. وفي تجربة ذات دلالة إحصائية أخرى لم تسجل أية فروق ملحوظة بين البرنامجين، إلا أنها أظهرت أن برنامج التفكير العميق قلل من الصحة النفسية لدى الطالبات المشاركات قليلاً وزاد بشكل طفيف من حدة التوتر والاكنتاب. الأمر الذي يدل ويعزز فكرة أن فرط التفكير والتحليل مضران بالصحة النفسية.

Keywords: Mindfulness; Mindfulness Based Stress Reduction (MBSR); Life satisfaction; Wellbeing; Meditation; Saudi Arabia

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As positive psychology flourishes in the MENA region, researchers in the field are conducting much empirical research (Rao, Donaldson & Doiron, 2015), with Saudi Arabia being no exception. The Muslim country is experiencing significant economic and social reforms following the announcement of ‘Vision 2030’ in April 2016. One of the vision’s themes is the creation of a ‘Vibrant Society’, which includes the national promotion of physical, social, and psychological wellbeing (Vision2030, 2016). This vision is timely for academic institutions looking to boost wellbeing, address student stress, and boost productivity. To become such positive institutions (Oades, Robinson, Green, & Spence, 2011), the implementation of positive psychology interventions (PPIs) can enhance the wellbeing of students and faculty alike. PPIs are ‘treatment methods or intentional activities aimed at cultivating positive feelings, positive behaviors, or positive cognitions’ (Sin & Lyubomirsky, 2009, p. 467). Mindfulness Based Stress Reduction (MBSR) programs, from which the Mindful Jeddah Program Training was inspired, are part of the suite of PPIs (Crane et al., 2016; Kabat-Zinn, 2013).

The prevalence of stress is high amongst university students in Saudi Arabia with females experiencing slightly higher levels and medical students also experiencing more than their peers (Aboalshamat, Hou, & Strodl, 2015; Sani et al., 2012). Technology and other time-saving innovations have made life fast paced indeed, with individuals focused on ‘doing’ and meeting deadlines instead of ‘being’ or ‘living’. Mindfulness-based therapy programs have been successful in relieving stress and improving overall wellbeing (Niazi & Niazi, 2011; Slade, 2010; Williams, 2006). These programs help individuals practice meditation, the practice of “attending non-judgmentally to all stimuli in the internal and external environment but to avoid getting caught up in (i.e. ruminating on) any particular stimulus” (Slade, 2010, p.8). They also increase the ability to feel fully engaged in activity, boost the ability to deal with adversity and strengthen physical health (i.e., decreasing heart disease risk, lowering blood pressure, improving sleep, and reducing chronic pain) (Andersen et al., 2013; Harvard Health Publications, 2018; Hughes et al., 2013; Reiner, Tibi, & Lipsitz, 2013; Slade, 2010; Sullivan et al., 2009).

However, most of these programs have been designed by and for Western and European populations with many being used in the region without regard for aspects of culture or religion. In fact, there are almost no comprehensive culturally sensitive mindfulness based wellbeing programs in Arab society, despite such societies having a rich culture that values spirituality greatly. Experts currently believe that religion must be considered and included in psychotherapy and assessment as it is primary human need (Hofmann, 2006). Saudi Arabia is a predominantly Muslim country and considering the role of religion in the offer of psychological interventions is essential (Saeedi, Nasab, Zadeh, & Ebrahimi, 2015). Consequently, the aim of this study is to test the effectiveness of a new mindfulness program, namely, the Mindful Jeddah Training Program (MJTP), which includes aspects of the Islamic faith, in a Saudi Arabian academic sample. The researchers chose



an academic setting in which to conduct this study as the lives of university students include academic pressures, social or personal issues, rigorous curriculum and work demands, and emotionally difficult experiences. We hypothesized the MJTP would have a positive effect on (1) wellbeing; (2) stress; (3) anxiety; (4) depression; (5) mindfulness itself; and (6) life satisfaction.

Mindfulness Based Stress Reduction Programs

Jon Kabat-Zinn, the founder of the Mindfulness Based Stress Reduction Program (MBSR) and pioneer in the field of mindfulness describes the term as an “awareness that arises through paying attention, on purpose, in the present moment, non-judgmentally” (Kabat-Zinn, 1982, 2013). The MBSR is an eight-week program that was developed to train people who suffer from chronic health problems and stress to learn to cope with daily life challenges (Kabat-Zinn, 1982, 2003, 2013). The secular behavioral intervention program teaches mindfulness meditation, the practice of being self-aware of the here and now and taking a non-judgmental attitude (Hollis-Walker & Colosimo, 2011). Examples of the personal qualities cultivated through mindfulness practice include becoming a non-judging, non-striving, accepting, patient, trusting, open individual, capable of letting go, being gentle, generous, empathic, and grateful (Slade, 2010). Mindfulness is known to have positive effects on psychological wellbeing and physical health (Andersen et al., 2013; Harvard Health Publications, 2018; Hughes et al., 2013; Reiner et al., 2013; Slade, 2010; Sullivan et al., 2009). We review the effects of mindfulness training programs, as well as the relationships between mindfulness and spirituality, emotional intelligence, personality and sleep quality.

The Effects of Mindfulness Based Interventions

Many mindfulness programs have been initiated for the benefit of the public. Soons, Brouwers and Tomic (2010) conducted an experimental study on the psychological impact of an MBSR program on highly sensitive persons (HSP), individuals who perceive, process and respond to low-intensity stimuli in their environment, body, or self-cognitions. The program aimed to teach such individuals to focus on the present moment, accept unpleasant thoughts and experience these without judgment or resistance. The results showed that it was helpful for HSPs to engage in mindfulness meditation as it increased their levels of self-acceptance, emotional empathy, personal growth, and self-transcendence; yet, no significant differences on the variables of stress and social anxiety were found. Other studies have shown that such programs enhance wellbeing and mindfulness itself while decreasing stress, anxiety and depression in college students (Bamber & Morpeth, 2018; Carmody & Baer, 2007; Greeson, Juberg, Maytan, James, & Rogers, 2014; Oman, Shapiro, Thoresen, Plante, & Flinders, 2008). Further, Falkenström (2010) conducted a quasi-experiment to study mindfulness and wellbeing in experienced meditators. The results indicated that the meditation experience was positively correlated with mindfulness and mindfulness was positively correlated with wellbeing. Cash and Whittingham (2010) also concluded that a higher degree of mindfulness’ nonjudgmental aspects predicted lower levels of depression, anxiety and stress related symptomatology, while a higher degree of awareness of the present moment predicted lower depressive symptomatology.

Mindfulness and Sleep Quality. In another direction, Howell, Digdon, Buro and Sheptycki (2008) investigated the relationship between mindfulness, wellbeing, and sleep, concluding that



mindfulness was both a direct and indirect predictor of wellbeing mediated by sleep quality. Brown and Ryan (2003) also conducted a set of correlational, quasi-experimental, and laboratory studies to provide a theoretical and empirical examination of the role of mindfulness in psychological wellbeing. Both dispositional and state mindfulness predicted self-regulated behavior and positive emotional states, while a clinical intervention with cancer patients showed that increases in mindfulness over time were related to declines in mood disturbance and stress. This outcome was also observed in a study that examined how sleep quality is an indirect indicator of wellbeing and mindfulness enhances sleep quality (Caldwell, Harrison, Adams, Quin, & Greeson, 2010).

Mindfulness, Personality and Emotional Intelligence. Hollis-Walker and Colosimo (2011) examined the relationship between mindfulness, psychological wellbeing, self-compassion and the five-factor personality trait model, discovering a relationship between mindfulness and personality. Individuals who scored high on mindfulness also scored high on self-compassion, psychological wellbeing, agreeableness, extraversion, openness and conscientiousness and conversely, low on neuroticism. Happiness and wellbeing were also mediated by self-compassion. Giluk's (2009) meta-analysis (n=29 studies) of the relationship between mindfulness, trait affect, and the Big Five personality traits showed that while all of the traits displayed appreciable relationships with mindfulness, the strongest relationships were found for neuroticism, conscientiousness and negative affect. In the study, mindfulness had a positive correlation with conscientiousness while, a negative correlation with neuroticism and negative affect was observed.

Other correlates include emotional intelligence. For example, Schutte and Malouff (2011) replicated previous findings regarding the relationship between mindfulness and subjective wellbeing and emotional intelligence. The results showed that greater mindfulness was significantly associated with more positive affect and life satisfaction, and less negative affect. Greater mindfulness was also associated with higher emotional intelligence, which in turn, was associated with more positive affect, life satisfaction, and less negative affect. Further, Schonert-Reichl and Lawlor (2010) conducted a quasi-experiment with a pretest-posttest design in Canada to observe the effectiveness of a mindfulness education program on pre- and early adolescents' wellbeing and social and emotional competence in the areas of optimism, self-concept, positive affect and social emotional abilities. Participants showed significant changes in all areas, except for self-concept which was only improved for pre- adolescents.

Mindfulness and Spirituality. Many studies have investigated the relationship between mindfulness and spirituality. The MBSR program provided preliminary evidence for enhanced spirituality, which was related to increases in mindfulness, in turn improving mental health-related quality of life (Greeson et al., 2014). Another study examined the relationship between conscientiousness and intrinsic spirituality with mindfulness as a mediator and concluded that conscientious individuals strongly associate with mindfulness. Yet, only those who showed a higher level of mindfulness exhibited high levels of intrinsic spirituality (Boyce & Sawang, 2014). AlDahada (2016) investigated the effects of a Muslim Praying Meditation and Transcendental Meditation program on mindfulness in Muslim university students, with both increasing self-reported mindfulness. The significant increase among participants was encouraging in view of earlier research suggesting that mindfulness is associated with psychological wellbeing.



The Present Study

Given the negative effect of stress and anxiety on the wellbeing of students, educational institutions are investing in promoting organizational cultures of wellbeing and providing preventive mental health services towards such aims (Abdel Rahman, Al Hashim, Al Hiji, & Al Abbad, 2013; AlGhalib, 2017; Oades et al., 2011). To this effect, the literature suggests that mindfulness interventions have a positive impact on wellbeing and decrease symptoms of stress, anxiety and depression (Bamber & Morpeth, 2018; Carmody & Baer, 2007; Cash & Whittingham, 2010; Falkenström, 2010; Greeson et al., 2014; Howell et al., 2008; Oman et al., 2008). Such programs have positive relationships with self-compassion, emotional intelligence and life satisfaction and deter negative affect and neuroticism (Brown & Ryan, 2003; Giluk, 2009; Hollis-Walker & Colosimo, 2011; Schonert-Reichl & Lawlor, 2010; Schutte & Malouff, 2011). They are also known to enhance spirituality (AlDahada, 2016; Boyce & Sawang, 2014; Greeson et al., 2011).

Further, mindfulness principles and techniques appear to overlap with Islamic rituals and have much in common with Islamic values (Thomas, Grey, & Kinderman, 2017). For example, engaging in the ritual of prayer conducted five times a day in the lives of Muslims, is a path for quieting the mind, slowing down one's thoughts and actions, engaging in repetitive ritual which provides comfort and requires little active directed thought, and known to offer many wellbeing and health benefits (Abdel-Khalek, 2014; Kamran, 2018; Saniotis, 2018; Whittington & Scher, 2010). Yet, there is often a disconnection between secular programs offered and the needs of Islamic societies which infuse religious beliefs into everyday living. As an example, a study conducted on female Muslim university students in the United Arab Emirates highlighted the efficacy of mindfulness-based programs, but researchers identified the lack of cultural affinity with the content used (Thomas, Raynor, & Bakker, 2016). Consequently, the development of effective and culturally-relevant wellbeing programs is of interest for practitioners and researchers alike. The present pilot study is an attempt to bridge this gap and offer a mindfulness-based program that shows early effectiveness, cultural congruence and religious reference for participants. Determining the effectiveness of such a culturally and religiously sensitive mindfulness-training program on university students is a first step towards the development of more formal program offerings which can meet Saudi Arabia's Vision 2030 wellbeing aims nationwide.

Methodology

Participants

Participants were female undergraduate students from a private university in Jeddah, Saudi Arabia aged between 17 to 24 years. Recruitment for the program took place via emails and posters soliciting participation around the campus. Participants who showed interest were given an orientation after which they signed confidentiality and consent forms. A total of 60 participants signed up for the study initially and were randomly assigned to the MJTP or MTP group (described further). All participants received certificates of completion at the end of the study.



Instruments

A total of four instruments were used, all of which were provided in the English language, the language of instruction at the university and with which students were familiar.

The Freiburg Mindfulness Inventory (FMI) (Walach, Buchheld, Buttenmuller, Kleinknecht, & Schmidt, 2006) is a valid and reliable questionnaire for measuring mindfulness (Kohls, Sauer, & Walach, 2009). The inventory consists of a 30-item scale with an internal consistency of Cronbach alpha = 0.93. The FMI was reduced to a 14-item scale that covers all aspects of mindfulness. In the present study, the internal consistency of the 14-item scale, as assessed by Cronbach's alpha, was 0.88.

The Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) is a widely used measure of global life satisfaction and overall assessment of feelings and attitudes about one's life at a particular point in time. It includes life satisfaction, positive affect, and negative affect (Diener & Emmons, 1984). It is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction. In this study, the scale had an internal consistency of 0.88.

The Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995) is a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. A short version, the DASS-21, is available with seven items per scale and was used in this study. Internal consistency is high in both versions. The DASS-21 scores are multiplied by two so that they can be compared with the regular length DASS (Parkitny & McAuley, 2010). In the present study, the internal consistency assessed by Cronbach's alpha was 0.95.

The Short Warwick-Edinburgh Mental Well-Being Scale (SWEMWBS; Houghton et al., 2017) is a 7-item scale that is the shorter version of the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS). The SWEMWBS showed adequate internal consistency and reliability in a study examining its use in Norway and Sweden (Haver, Akerjordet, Caputi, Furunes, & Magee, 2015). In the present study, internal consistency as assessed by Cronbach's alpha was 0.88.

Research Design

The experiment had a two-group pretest-posttest design. The first group was the 'Mindful Jeddah Training Program' (MJTP) group and the second, the 'My Time Program' (MTP) group. An online questionnaire containing all the scales was given to participants as a pre and post-test.

Procedure

The MJTP intervention protocol was given to the experimental group for 120 minutes (2 hours) per week over a period of three weeks. The intervention program was created using the Mindfulness Based Stress Reduction (MBSR) program developed by Jon Kabat-Zinn in the 1970s (Kabat-Zinn, 2013). The MJTP incorporates daily breathing exercises and meditation, and weekly mini-lessons posted on a webpage. The first week focused on physical awareness, the second on psychological awareness, and the third on spiritual awareness (see Table 1 below).



Table 1

Weekly Group Themes

Week	Theme	Activity
1	Physical awareness	<p>Breathing exercise: Participants are trained to gradually deepen their inhalation and exhalation rhythms.</p> <p>Body scan/Awareness: Participants focus on their breath and attend to bodily sensations, while visualizing each breath penetrating and relaxing body areas, allowing feelings of urgency and intensity to flee.</p> <p>Awareness of surroundings: Participants became perceptive and cognizant of events by noticing and remaining non-judgmental.</p> <p>Body movement (stretches): Participants stretch specific muscles to improve their elasticity and attain comfortable muscle tone.</p>
2	Psychological Awareness	<p>Feeling/emotion: Videos, reading material/tasks given to heighten awareness of emotions, as well as enhance emotional awareness and intelligence to empower spiritual journey to Islam (Alexander, 2011).</p> <p>Stress reduction: Videos, reading materials, and a meditation exercise were provided online for participants to learn more about stress, dealing with stressful situations and how stress can be used positively.</p> <p>Bringing thoughts to the present: Participants attended to their surroundings to perceive beauty and wonder in the world.</p>
3	Spiritual Awareness	<p>Openness to experience: Videos, reading materials and activities such as keeping a journal for new experiences helped participants become more receptive to entertaining new and challenging facets of life.</p> <p>Gratitude: A guided meditation was provided online to enhance the practice of gratitude in participants.</p> <p>Taqwa (Being conscious of Allah's presence): Videos on Taqwa and Islamic spirituality (Alexander, 2012; AlShukry, 2015; Mastery, 2016).</p> <p>Divine Power of Dhikr: The practice of dhikr (chanting) originates in Islamic Spirituality; it is done a few minutes after daily prayer.</p> <p>Silent meditation: Online guided meditation given to experience quiet and emptiness. They focus mind, heart and soul on God's presence.</p>



Mini-lessons included videos, reading materials, assignments, and guided meditation audio clips. A WhatsApp group was created to remind participants to use the techniques, as well as respond to queries. During the intervention sessions, participants undertook mindfulness training with a wellbeing expert from the AmA center in Saudi Arabia. An orientation session at the start of the program as well as a debriefing session at the end was provided.

An active control group was created for comparison. Lindsay (2017) developed a control program entitled "My Time", which was given for two hours a week over the same three week duration. This provided participants with a semblance of programming that included activities like analytical thinking, critical appraisal, reflection, as well as lectures, home assignments and reading material. The control group activities contrasted with mindfulness, such that analyzing and overthinking about one's life, past or future, is known to create stress, impede cognitive functioning, and undermine happiness and wellbeing (Beilock & Carr, 2004; Schwartz et al., 2002). These activities were also based on the weekly physical, psychological and spiritual themes. After each session, a questionnaire was given to participants to collect data on how to improve the program in the future and how useful or beneficial the program was for the participants.

Results

A total of 49 participants participated in the first session, with 32 remaining for the duration of the three week program. In the final analysis, only 26 participants were included. The Mindful Jeddah Training Program group (MJTP) had 10 participants while the My Time Program (MTP) group had 16. All participant data was used for the analysis as they attended all three weeks and completed the pre and posttests. Table 2 includes a cross-tabulation of participant majors, while Table 3 shows their university year. Table 4 shows the number of participants with prior experience in meditation, relaxation, stress reduction and/or breathing techniques.

Table 2

University Major

Major	MJTP Group	MTP Group
Psychology	6	7
Human Resources	1	-
English And Translation	-	1
Architecture	-	2
Information Systems	1	2
Computer Science	-	1
OPIM	-	1
Electrical/Computer Engineering	2	-
Marketing	-	1
Entrepreneurship	-	1
Total	10	16



Table 3

Level of Education

Level Of Education	MJTP Group	MTP Group
Freshman	1	6
Sophomore	4	4
Junior	1	2
Senior	4	4
Total	10	16

Table 4

Prior Experience MBSR

Prior experience in breathing, relaxation techniques, stress reduction techniques, etc.	MJTP Group	MTP Group
Yes	4	8
No	6	8
Total	10	16

In Table 5, a paired-samples (dependent) t-test showed that the MJTP group experienced a significant increase in life satisfaction from the pretest ($M= 17.6$, $SD= 6.40$) to the posttest ($M= 22.7$, $SD= 6.72$), $t(9)= 2.59$, $p= .029$.

Table 5

Dependent T-test for MJTP Group

Scale	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Satisfaction with Life scale (pretest/posttest)	5.100	6.226	1.969	-9.554	-.646	2.590	9	0.029*



An independent t-test between the MJTP and MTP group showed no significant differences between the scales. Table 6 compares the pretest and posttest mean scores of both groups for all instruments used. Although the t-test did not yield significant results due to the small sample, Table 6 shows that the mean difference (MD) between the mindfulness scale pretest ($M=32.5$, $SD=7.89$) and the posttest ($M=36.5$, $SD=5.28$) differed significantly between the MJTP and MTP group ($MD=1.19$). The same trend was observed between life satisfaction and mental wellbeing. The intervention for the MJTP group generated slightly better results than the MTP group. The mindfulness program facilitated a decrease in the pre to post-test means for anxiety, stress and depression while anxiety and depression slightly increased in the control group.

Table 6

A Comparison of Means of MJTP and MTP Groups

Name of Scale	Group #	N	Mean	Std. Deviation
Mindfulness scale pre	MJTP	10	32.50	7.892
	MTP	16	33.81	6.892
Mindfulness scale post	MJTP	10	36.50	5.276
	MTP	16	35.00	7.925
Satisfaction of life scale pre	MJTP	10	17.60	6.398
	MTP	16	20.25	6.787
Satisfaction of life scale post	MJTP	10	22.70	6.717
	MTP	16	21.44	7.375
DASS- Stress pre	MJTP	10	10.90	4.383
	MTP	16	11.00	4.502
DASS- Stress post	MJTP	10	9.40	4.648
	MTP	16	10.19	4.792
DASS- Anxiety pre	MJTP	10	10.20	3.490
	MTP	16	10.75	5.580
DASS-Anxiety post	MJTP	10	9.50	4.301
	MTP	16	11.75	6.006
DASS- Depression pre	MJTP	10	9.90	5.486
	MTP	16	7.13	3.948



DASS- Depression post	MJTP	10	8.70	4.296
	MTP	16	8.06	4.725
Mental Wellbeing pre	MJTP	10	21.70	6.183
	MTP	16	23.19	5.231
Mental Wellbeing post	MJTP	10	23.80	5.959
	MTP	16	22.19	5.516

Discussion

The aim of this study was to test the effectiveness of the Mindful Jeddah Training Program (MJTP) on a university student group in Saudi Arabia. The results showed that this mindfulness-based intervention had a significant positive effect on the life satisfaction of students. A comparison of the mean scores of the pre and post-tests for the treatment group showed that mindfulness and wellbeing levels marginally increased while anxiety, depression and stress levels slightly decreased. Many studies have shown similar findings on the effects of mindfulness training programs on college students (Bamber & Morpeth, 2018; Greeson et al., 2014; Oman et al., 2008). Nonetheless, the lack of statistically significant differences is in part, due to the small sample size and number of sessions offered.

The My Time Program (MTP) intervention marginally lowered stress levels, but also enhanced life satisfaction. This may be due to what is called the Hawthorne effect, the paradoxical improvement in outcomes that is not due to treatment effects, but a result of being observed and given attention (McCarron, Witton, & Elbourne, 2014). Yet, the mean scores of the MTP intervention nonetheless showed that anxiety and depression increased from pretest to post-test; the level of mental wellbeing also slightly decreased. This outcome is consistent with the idea that analyzing and overthinking life can be stressful, impede cognitive functioning, and in turn, undermine happiness and wellbeing (Beilock & Carr, 2004; Schwartz et al., 2002). Although there was not enough time to carry out interviews, open-ended questionnaires administered at the end of sessions provided information on how beneficial the program was and whether the Islamic components were useful. Participant comments shed light on this matter.

“I wish if I could continue with this program for a long time because I need to explore myself. Thank you because I enjoyed... Loved it.”

“The materials [provided online] on Zikr were very useful for me because I had stopped doing Zikr after my prayers for a very long time. It was nice to start doing it again....made me feel more connected with my religion [Islam] without feeling any pressure to do it.”

“Thank you so much. The program was very effective as it went on....should be a little longer. Please provide such a program like this every semester”.

“At first I was very reluctant to be a part of this program because it sounds very confusing [unfamiliar] but when I saw the materials on the website, I was able to understand everything and found it very normal [relatable].”

While rigorous testing was not done to determine whether the addition of Islamic or culturally relevant materials was useful, participant feedback suggest it is at least a draw.



Limitations and Future Recommendations

A few limitations were identified. The small sample size constrained the generalizability of the study. The high attrition rate can be accounted for by the fact that the study was conducted at the end of the university's academic semester and many students were unable to attend all of the sessions. Further, many participants did not take advantage of the materials posted on the website; this may have affected the results as participants did not incorporate mindfulness into their daily life adequately. Another limitation was the small frequency of meditation sessions offered to students throughout the week; perhaps a greater number would have impacted results otherwise.

Hendrick et al. (2018) argue that merely receiving any attention at all may contribute to treatment gains. However, the MJTP group showed slight increases in wellbeing while the MTP group showed decreases in wellbeing over the course of the program. Despite the limitations, the study shows potential for the implementation of mindfulness based wellbeing programs to help higher education students. We recommend that further research be done in Saudi Arabia on different genders and age groups, as well as on larger and more diverse samples, i.e., community groups, to increase the program's generalizability. A wait-list control group should also be included to ensure any gains are solely due to the application of the intervention. More flexible timings and a greater number of meditation sessions should be considered as well.

Finally, this program attempted to include Islamic precepts and cultural references in a bid to make mindfulness more relevant to participants, an issue raised by other researchers in the region (Thomas et al., 2016). Continued work is crucial in this regard as there are few guidelines in place for making Western psychological concepts, such as mindfulness, culturally applicable, relevant and best offered to participants for maximum effects. We hope to continuously refine, make adjustments, and test our program infusing additional Islamic values with Western science to make an important impact on Saudi wellbeing.

Conclusion

In conclusion, the Mindful Jeddah Training Program had a significant positive effect on life satisfaction and a marginal positive effect on mindfulness and mental wellbeing. It reduced stress, anxiety and depression in this Saudi student sample. The program shows potential for enhancing the quality of life in Saudi academic institutions. Such programs should be made widely available and perhaps even mandatory in order to make the university experience more pleasant for students as well as enhance their productivity. Programs like these can go a long way in meeting the aims of Saudi's Vision 2030, as well as pave the way for universities and schools to become positive institutions (Oades et al., 2011), where the happiness and wellbeing of all is a priority.

References

- Abdel-Khalek, A. M. (2014). Religiosity, health and happiness: Significant relations in adolescents from Qatar. *International Journal of Social Psychiatry, 60*(7), 656-661.
- Abdel Rahman, A. G., Al Hashim, B. N., Al Hiji, N. K., & Al Abbad, Z. (2013). Stress among medical Saudi students at College of Medicine, King Faisal University. *Journal of Preventive Medicine and Hygiene, 54*(4), 195-199.



- Aboalshamat, K., Hou, X., & Strodl, E. (2015). Psychological well-being status among medical and dental students in Makkah, Saudi Arabia: A cross-sectional study. *Medical Teacher, 37* (Suppl 1), S75-837.
- AlDahada, B. (2016). The effectiveness of transcendental meditation program in improvement the level of mindfulness among the female students in the University of Nizwa. *Dirasat Educational Sciences, 43*(1), 617-631.
- Alexander, I. (2011, June 03). *Check in with your feelings to bring yourself to a state of Islam*. [Video File]. Retrieved from https://www.youtube.com/watch?time_continue=7&v=14kxFLMD-fo
- Alexander, I. (2012, January 29). *Experiencing inner peace through Islamic spirituality*. [Video File]. Retrieved from <https://www.youtube.com/watch?v=kr7J6HwFVhw>
- Alghalib, S. (2017). Depression, anxiety and stress among university students: The case of Jeddah, Saudi Arabia. *Journal of Depression and Anxiety, 6*(3), 37.
- AlShukry, A. (2015, August 26). *5 ways to increase taqwa | Ammar Alshukry | Rhyme Reason*. [Video File]. Retrieved from <https://www.youtube.com/watch?v=bjRlicBEAeg>
- Andersen, S. R., Würtzen, H., Steding-Jessen, M., Christensen, J., Andersen, K. K., Flyger, H., . . . Dalton, S. O. (2013). Effect of mindfulness-based stress reduction on sleep quality: Results of a randomized trial among Danish breast cancer patients. *Acta Oncologica, 52*(2), 336-344.
- Bamber, M. D., & Morpeth, E. (2018). Effects of mindfulness meditation on college student anxiety: A meta-analysis. *Mindfulness, 30*. doi:10.1007/s12671-018-0965-5
- Beilock, S. L., & Carr, T. H. (2004). When high-powered people fail: Working memory and choking under pressure in math. *Psychological Science, 16*(2), 101-105.
- Boyce, M., & Sawang, S. (2014). Unpacking the role of mindfulness in conscientiousness and spirituality. *The Interdisciplinary Journal of Research on Religion, 10*(6), 1-21.
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*(4), 822-848.
- Caldwell, K., Harrison, M., Adams, M., Quin, R. H., & Greeson, J. (2010). Developing mindfulness in college students through movement-based courses: Effects on self-regulatory self-efficacy, mood, stress, and sleep quality. *Journal of American College Health, 58*(5), 433-442.
- Carmody, J., & Baer, R. A. (2007). Relationships between mindfulness practice and levels of mindfulness, medical and psychological symptoms and well-being in a mindfulness-based stress reduction program. *Journal of Behavioral Medicine, 31*(1), 23-33.
- Cash, M., & Whittingham, K. (2010). What facets of mindfulness contribute to psychological well-being and depressive, anxious, and stress-related symptomatology? *Mindfulness, 1*(3), 177-182.
- Crane, R. S., Brewer, J., Feldman, C., Kabat-Zinn, J., Santorelli, S., Williams, J. M., & Kuyken, W. (2016). What defines mindfulness-based programs? The warp and the weft. *Psychological Medicine, 47*(6), 990-999.
- Diener, E., & Emmons, R. A. (1984). The independence of positive and negative affect. *Journal of Personality and Social Psychology, 47*(5), 1105-1117.



- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment, 49*(1), 71-75.
- Falkenström, F. (2010). Studying mindfulness in experienced meditators: A quasi-experimental approach. *Personality and Individual Differences, 48*(3), 305-310.
- Giluk, T. L. (2009). Mindfulness, Big Five personality, and affect: A meta-analysis. *Personality and Individual Differences, 47*(8), 805-811.
- Greeson, J. M., Juberg, M. K., Maytan, M., James, K., & Rogers, H. (2014). A randomized controlled trial of koru: A mindfulness program for college students and other emerging adults. *Journal of American College Health, 62*(4), 222-233.
- Greeson, J. M., Webber, D. M., Smoski, M. J., Brantley, J. G., Ekblad, A. G., Suarez, E. C., & Wolever, R. Q. (2011). Changes in spirituality partly explain health-related quality of life outcomes after mindfulness-based stress reduction. *Journal of Behavioral Medicine, 34*(6), 508-518.
- Harvard Health Publications. (2018). *Mindfulness can improve heart health*. Retrieved from <https://www.health.harvard.edu/heart-health/mindfulness-can-improve-heart-health>
- Haver, A., Akerjordet, K., Caputi, P., Furunes, T., & Magee, C. (2015). Measuring mental well-being: A validation of the Short Warwick-Edinburgh Mental Well-Being scale in Norwegian and Swedish. *Scandinavian Journal of Public Health, 43*(7), 721-727.
- Hendriks, T., Schotanus-Dijkstra, M., Hassankhan, A, Graafsma, T., Bohlmeijer, E., & de Jong, J., (2018). The efficacy of positive psychology interventions from non-Western countries: A systematic review and meta-analysis. *International Journal of Wellbeing, 8*(1), 71-98.
- Hofmann, S. G. (2006). The importance of culture in cognitive and behavioral practice. *Cognitive and Behavioral Practice, 13*(4), 243-245.
- Hollis-Walker, L., & Colosimo, K. (2011). Mindfulness, self-compassion, and happiness in non-meditators: A theoretical and empirical examination. *Personality and Individual Differences, 50*(2), 222-227.
- Howell, A. J., Digdon, N. L., Buro, K., & Sheptycki, A. R. (2008). Relations among mindfulness, well-being, and sleep. *Personality and Individual Differences, 45*(8), 773-777.
- Houghton, S., Wood, L., Marais, I., Rosenberg, M., Ferguson, R., & Pettigrew, S. (2017). Positive mental well-being: A validation of a Rasch-derived version of the Warwick-Edinburgh Mental Well-Being Scale. *Assessment, 24*(3), 371-386.
- Hughes, J. W., Fresco, D. M., Myerscough, R., Dulmen, M. H., Carlson, L. E., & Josephson, R. (2013). Randomized controlled trial of mindfulness-based stress reduction for prehypertension. *Psychosomatic Medicine, 75*(8), 721-728.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry, 4*(1), 33-47.
- Kabat-Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice, 10*, 144-156.
- Kabat-Zinn, J. (2013). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York, NY: Delacorte.



- Kamran, G. (2018). Physical benefits of (Salah) prayer - Strengthen the faith and fitness. *Journal of Novel Physiotherapy and Rehabilitation*, 2, 43-53.
- Kohls, N., Sauer, S., & Walach, H. (2009). Facets of mindfulness: Results of an online study investigating the Freiburg mindfulness inventory. *Personality and Individual Differences*, 46(2), 224-230.
- Lindsay, E. (2017). *My Time Scripts*. Unpublished manuscript, Carnegie Mellon University, Pittsburgh, PA.
- Lovibond, P. F., & Lovibond, S. H. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Sydney, Australia: Psychology Foundation.
- Mastery, M. (2016, June 03). *What is taqwa?* [Video File]. Retrieved from <https://www.youtube.com/watch?v=TE9hGeA8qvA>
- McCambridge, J., Witton, J., & Elbourne, D. R. (2014). Systematic review of the Hawthorne effect: New concepts are needed to study research participation effects. *Journal of Clinical Epidemiology*, 67(3), 267- 277.
- Mccrae, R. R., & Greenberg, D. M. (2014). Openness to experience. In D. K. Simonton (Ed.), *The Wiley handbook of genius* (pp. 222-243). New York, NY: Wiley-Blackwell.
- Niazi, A., & Niazi, S. (2011). Mindfulness-based stress reduction: A non-pharmacological approach for chronic illnesses. *North American Journal of Medical Sciences*, 3(1), 20-23.
- Oades, L. G., Robinson, P., Green, S., & Spence, G. B. (2011). Towards a positive university. *The Journal of Positive Psychology*, 6, 432-439.
- Oman, D., Shapiro, S. L., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Meditation lowers stress and supports forgiveness among college students: A randomized controlled trial. *Journal of American College Health*, 56(5), 569-578.
- Parkitny, L., & McAuley, J. (2010). The Depression Anxiety Stress Scale (DASS). *Journal of Physiotherapy*, 56(3), 204.
- Rao, M. A., Donaldson, S. I., & Doiron, K. M. (2015). Positive psychology research in the Middle East and North Africa. *Middle East Journal of Positive Psychology*, 1(1), 60-76.
- Reiner, K., Tibi, L., & Lipsitz, J. D. (2013). Do mindfulness-based interventions reduce pain intensity? A critical review of the literature. *Pain Medicine*, 14(2), 230-242.
- Sani, M., Mahfouz, M., Bani, I., Alsomily, A., Alagi, D., Alsomily, N., . . . Asiri, S. (2012). Prevalence of stress among medical students in Jizan University, Kingdom of Saudi Arabia. *Gulf Medical Journal*, 1(1), 19-25.
- Saniotis, A. (2018). Understanding mind/body medicine from Muslim religious practices of salat and dhikr. *Journal of Religion and Health*, 57(3), 849-857.
- Schonert-Reichl, K. A., & Lawlor, M. S. (2010). The effects of a mindfulness-based education program on pre- and early adolescents' well-being and social and emotional competence. *Mindfulness*, 1(3), 137-151.
- Schutte, N. S., & Malouff, J. M. (2011). Emotional intelligence mediates the relationship between mindfulness and subjective well-being. *Personality and Individual Differences*, 50(7), 1116-1119.



- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology, 83*(5), 1178-1197.
- Saeedi, H., Nasab, S. M., Zadeh, A., & Ebrahimi, H. (2015). The effectiveness of positive psychology interventions with Islamic approach on quality of life in females with multiple sclerosis. *Biomedical and Pharmacology Journal, 8*(2), 965-970.
- Sin, N. L., & Lyubomirsky, S. (2009). Enhancing well-being and alleviating depressive symptoms with positive psychology interventions: A practice-friendly meta-analysis. *Journal of Clinical Psychology, 65*(5), 467-487.
- Slade, M. (2010). Mental illness and well-being: The central importance of positive psychology and recovery approaches. *BMC Health Services Research, 10*(1), 1-14.
- Soons, I., Brouwers, A., & Tomic, W. (2010). An experimental study of the psychological impact of a mindfulness-based stress reduction program on highly sensitive persons. *Europe's Journal of Psychology, 6*(4), 148-169.
- Sullivan, M. J., Wood, L., Terry, J., Brantley, J., Charles, A., Mcgee, V., . . . Cuffe, M. S. (2009). The Support, Education, and Research in Chronic Heart Failure Study (SEARCH): A mindfulness-based psychoeducational intervention improves depression and clinical symptoms in patients with chronic heart failure. *American Heart Journal, 157*(1), 84-90.
- Thomas, J., Grey, I., & Kindermann, P. (2017). *Exploring culturally attuned mindfulness based stress reduction (MBSR) as a means of improving quality of life, emotional well-being and academic performance of Emirati college students*. Zayed University Working Paper No. ZU-WP 2017-04-05. Retrieved from https://www.zu.ac.ae/main/en/research/publications/_documents/Exploring%20Culturally%20Attuned%20Mindfulness%20Based%20Stress%20Reduction.pdf
- Thomas, J., Raynor, M., & Bakker, M. (2016). Mindfulness Based Stress Reduction amongst Emirati Muslim women. *Mental Health Religion & Culture, 19*(3), 295-304.
- Vision 2030. (2016, May 8). Retrieved from <http://vision2030.gov.sa/enhttps://www.mindful.org/jon-kabat-zinn-defining-mindfulness/>
- Walach, H., Buchheld, N., Buttenmüller, V., Kleinknecht, N., & Schmidt, S. (2006). Measuring mindfulness—The Freiburg Mindfulness Inventory (FMI). *Personality and Individual Differences, 40*(8), 1543-1555.
- Whittington, B. L., & Scher, S. J. (2010). Prayer and subjective well-being: An examination of six different types of prayer. *The International Journal for the Psychology of Religion, 20*(1), 59-68.
- Williams, K. (2006). Mindfulness-Based Stress Reduction (MBSR) in a worksite wellness program. *Mindfulness-Based Treatment Approaches, 361-376*.