Impact of Mindfulness-Based Stress Reduction (MBSR) on Students' Social Anxiety: A Randomized Controlled Trial

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ABSTRACT
The purpose of this study was to examine the effects of a Mindfulness-Based Stress Reduction (MBSR) program on reduced stress and perceived anxiety. 27 students with social anxiety, aged 16–40 years, from a China university were randomized to MBSR with routine care group (MBSR group, n = 14) and routine care group (non-MBSR group, n = 13). As expected, an increase in anxiety symptoms during the social situations led to more perceived anxiety in the non-MBSR group, but not in the MBSR group, due to the MBSR program. However, the MBSR group had significantly decreased anxiety and avoidance symptoms compared to the non-MBSR group. The results in this trial show that MBSR can protect students with social anxiety from an increase in perceived anxiety during the social situations.

Key Words: Mindfulness-Based Stress Reduction (MBSR), Social Anxiety, Reduced Stress, Intervention

Introduction
Social anxiety is an anxiety disorder that is appeared with fear or anxiety about individual social situations exposed to others. Also, it is a chronic disease with a gradual and early onset during adolescence that leads to plenty of suffering and disability (Stein and Stein, 2008). It is one of the most common anxiety disorders in clinical specimen (Carré et al., 2013) and a highly debilitating disorder that can disrupt social communication, academic achievement and well-being (Furmark, 2002). People with social anxiety disorder almost always experience anxiety symptoms (palpitations, tremors, sweating, gastrointestinal upset, diarrhea, muscle tension, and blush) in social situations (Beard and Amir, 2008). Epidemiologic studies show that the prevalence rate is 19-33% in adolescents and young people and 3-13% in adult population (Polo et al., 2011). People with social anxiety disorder who think are stupid or clumsy underestimate their talents. On the other hand, they are a perfectionist and believe that others expect a great performance by them. Some studies, in addition to risk factors such as childhood and adolescence troubles, refers to family problems such as the lack of intimate relationships with parents, conflicts with parents, and frequent movements (Brook and Schmidt, 2008; Bejarpas and Soleimani, 2017). Psychological data show that the parents of people with social anxiety are neglectful, rejectionist, or on the contrary, excessive supporter compared to other parents. Various studies have been proposed as effective therapies for social anxiety (Foa, 2006), therapeutic methods such as medications and cognitive-behavioral methods that are empirically...
verified (Tabatabaei et al., 2017; Farhan and Haleem, 2016). One of these therapies is the Mindfulness-Based Stress Reduction (MBSR). Mindfulness means paying attention to a particular way, focusing on the goal in the present and without judgment (Lakhan and Schofield, 2013; Jaipal et al., 2015). In Mindfulness, the individual learns to be conscious of his state of mind at any given moment and focus his attention on his various mental ways. Mindfulness means the attention of pure reality without explanation (Silananda, 1995). The MBSR method is based on relaxation techniques and focusing on the present, which leads to anxiety management and reduction (Santorelli, 2015). The method is beneficial in the structure of traditional medicine and for a wide range of people with chronic stress-related disorders.

One of the consequences of mindfulness practice is that people find that most of the senses, thoughts and emotions have a fleeting fluctuation (Munoz et al., 2016). The impact of psychological interventions shows that the interpretive styles of individuals are flexible; in fact, cognitive education not only changes interpretations, and it also modifies emotional and cognitive symptoms in anxious individuals. Over the centuries, mindfulness has proven to reduce pain and suffering and improve emotional and cognitive symptoms, and increase welfare and reduce anxiety (Yang et al., 2015; Lakhan SE, Schofield, 2013; Shankar et al., 2016). Studies show that mindfulness improves life quality and effective coping skills use (Tharaldsen KB, Bru, 2012).

Mindfulness emphasizes the presence in the present without interpreting and judging the signs related to disorders (Santorelli, 2014). One of the functions of mindfulness is to increase self-regulation skills in a person that involves controlling emotions and cognitive aspects of social situations (Keng et al., 2011; Ullah et al., 2016). According to the Friedela et al. (2015) study, self-regulatory activities relate to the front of the brain or the cerebral cortex for cognitive and metacognitive analysis in the form of mindfulness. Studies show that the mind increases individual control in inhibiting anxiety symptoms by increasing the cognitive and emotional self-regulating skills of the forearm cortex (Yang et al., 2015). Therefore, knowing the effectiveness of the MBSR as an environmental and learning factor and engaging in the forehead can play an important role in reducing anxiety as a new treatment. The aim of this study was to determine the impact of the MBSR program on social anxiety in students for the first time.

**Methods**

**Study design**

We used a randomized controlled trial, with an active non-MBSR group. Whereas students in the MBSR group received the MBSR program in addition to routine care, students in the non-MBSR group received routine care alone. The study was approved by the Psychotherapy Services Center in China.

**Subjects and procedure**

In this study, the inclusion criteria were: age > 16, a recent new diagnosis of social anxiety, not being under other treatment, and no having other disorder. The sample consisted of 27 students, all in their first year at a China University. Students were studying chemistry, physics, mechanics, medicine, management, accounting and philosophy. The students with social anxiety were randomly assigned to a MBSR group (n = 14) and a non-MBSR group (n = 13). Differences age in the both groups were negligible (MBSR group: mean = 24.18, SD = 2.49; non-MBSR group: mean = 24.21, SD = 2.37).

Directly before and 2 weeks after the MBSR program all 27 students filled in the scales related to the three variables: anxiety, avoidance and reduced stress. According to Fig. 1, there was no drop out. The important point here is that psychology students could attend the MBSR program as part of their studies.

![Figure 1](image_url)
The MBSR program

The MBSR program was a 8-week program, a group session per week, designed to complement advice provided by the anxiety care team. During the sessions, meditative and emotional and cognitive self-regulation skills and, finally, stress reduction methods including winding scan training and yoga methods were taught. Participants were trained to focus on their activities and be aware at any moment of their condition, and whenever emotions and senses are processed, they should observe without judgment, so the participants will learn to focus their thoughts and feelings, but no content.

At the first session, the MBSR was begun to provide group coherence and introduction of individuals, and educational information on stress. At the second session, it was taught to practice body check, and for homework, body check, conscious eating, and sitting meditation. In the third session, relaxed and conscious movements of yoga were presented as a way to calm down the physical symptoms of stress and awareness of delicate body movements. It was also considered body checking, yoga, meditation session focused on breathing, awareness of non-heartfelt events and awareness of a common event as homework. In the fourth session, sitting meditation was considered emphasizing the perception of physical sentiment as mere emotion. At this point, a number of homework recommendations were made including body checks, yoga, walking meditation, and sitting meditation. In the fifth session, it was exchanged about half way through. The homework also included a communication exercise and an awareness of the difference between the usual reaction (without choice) and the response (with choice). At the sixth session, the meditation was sitting deeply for a long time. In this meeting, homework exercises included body checks, yoga, walking meditation, sitting meditating sessions and daily routine exercises. The seventh session focused on practicing non-selective consciousness or setting meditation. Non-selective consciousness is different from focusing on a particular subject in whom the individual focuses on the subject or mental or physical image. The homework was including body checks, yoga, walking meditation, consciousness and setting meditation in everyday life. At the eighth session, body check was begun, and it continued with setting meditation.

Measures

Anxiety and Avoidance

The variables anxiety and avoidance were measured with the Liebowitz Social Anxiety Scale (LSAS) questionnaire (Liebowitz, 1987), which consists of twenty four items in the original version. The scale assesses the way that social phobia plays a role in person’s life across a variety of situations. Heimberg et al. (1999) reported the psychometric properties of the LSAS scale and believe that it is one of the most accurate scales available in measuring social anxiety. Previous studies supported the reliability and validity of the LSAS scale (Heimberg et al., 1999; Beard et al., 2011).
**Reduced stress**

Reduced stress was measured with the Perceived stress Scale (PSS-14) (Cohen et al., 1983), which consists of fourteen items in original version. Previous studies supported the reliability and validity of the PSS-14 (Lee, 2012; Andreou et al., 2011). We obtained an alpha coefficient of 0.78 at before the MBSR program and of 0.82 at after the MBSR program.

**Analysis**

The MBSR and non-MBSR groups were compared in a 2 × 2 MANOVA with tests before and after the MBSR program. This study used descriptive statistics to analyze characteristics related to the sample at before the MBSR program. Further, it used independent t-tests and chi-square to determine significant or non-significant relationships between the variables anxiety, avoidance, and reduced stress.

**Results**

As can be seen in Fig. 1, a total of 36 students were screened for eligibility, 9 students were excluded from our study, and we completed analysis on the data from 27 students. Table 1 shows characteristics at before the MBSR program. Students were aged between 16-40 years. The majority in the MBSR and non-MBSR groups were male, all in their first year at the university. More students in the both groups were studying medicine with a white ethnicity.

Mean scores for the variables anxiety, avoidance and reduced stress were the main measure of students’ social anxiety in this study. After the MBSR program, we found significant differences between the MBSR group and non-MBSR group for the variables anxiety (MBSR group: mean = 2.79, SD = 0.36; non-MBSR group: mean = 3.31, SD = 0.94), avoidance (MBSR group: mean = 3.78, SD = 0.65; non-MBSR group: mean = 4.42, SD = 0.62), and reduced stress (MBSR group: mean = 3.71, SD = 0.71; non-MBSR group: mean = 3.05, SD = 0.19). While anxiety increased in the non-MBSR group (before the MBSR program: mean = 3.07, SD = 0.22, after the MBSR group: mean = 3.31, SD = 0.94), it decreased in the MBSR group (before the MBSR program: mean = 3.11, SD = 0.38, after the MBSR group: mean = 2.79, SD = 0.36). Further, avoidance increased in the non-MBSR group (before the MBSR program: mean = 4.18, SD = 0.37, after the MBSR group: mean = 4.42, SD = 0.62), it decreased in the MBSR group (before the MBSR program: mean = 4.14, SD = 0.11, after the MBSR group: mean = 3.78, SD = 0.65). Reduced stress decreased in the non-MBSR group (before the MBSR program: mean = 3.51, SD = 0.44, after the MBSR group: mean = 3.05, SD = 0.19), it increased in the MBSR group (before the MBSR program: mean = 3.55, SD = 0.67, after the MBSR group: mean = 3.71, SD = 0.71). Most the students experienced high levels of anxiety, avoidance and reduced stress sometimes and often.

**Discussion**

As expected, in the non-MBSR group, students reported an increase of anxiety symptoms in the social situations. In the MBSR group, it decreased. Thus, the first hypothesis of this paper could be partially supported. As our second hypothesis, students in the non-MBSR group reported an increase of avoidance, whereas the students of the MBSR group reported a decrease.

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For our third hypothesis, the findings give evidence for the expected increase in reduced stress in the MBSR group, while we found a decrease in the non-MBSR group. According to recent studies, people with social anxiety disorder think mentally over and over again about the conditions before confronting anxious social status and review potential anxiety situations and situations and how to deal with it. They investigate events that might be embarrassing for them, even don’t finish the discipline of thoughts after confronting that position, check their behavior in the coming days, usually blame themselves for mistakes and poor displays, and are more pessimistic than others. The principle of the mindfulness training emphasizes the admission without judgment of individuals to the affairs. As a result, people under the treatment get to know that the mind is wandering inside thoughts, memories or fantasies, and they must revert their attention to the present, whenever possible and without regard to the content and nature. One of the functions of mindfulness is to increase self-regulation skills in a person, which includes the control of the emotions and cognitive aspects of social situations. Friedela et al. (2015) focused on self-regulatory activities related to the front of a brain or cerebral cortex as the position of cognitive and metacognitive analysis in the form of mindfulness. Based on this research, Yang et al. (2015) found that the presence of the mind increases individual control in inhibiting the symptoms of anxiety by increasing the cognitive and emotional self-regulation skills and the effect on the forehead and parasympathetic branch of nervous system. At neurobiology level, it has been shown that mindfulness causes interaction between two hemispheres and between limbic system and cerebral cortex. One part of the therapeutic effect is due to anxiety by stimulating left hemisphere activity and reducing the right hemisphere activity; therefore mindfulness can reduce anxiety by affecting brain’s hemispheres (Grossman et al., 2004). In general, it can be argued that Mindfulness-Based Stress Reduction (MBSR) method is effective in treating social anxiety through effects on biological foundations.

Acknowledgement

Education inheritance research project of Xinjiang Uygur traditional sports intangible cultural heritage (No. RWSK14-Y16).

References


