A randomized controlled trial of the effects of brief mindfulness meditation on anxiety symptoms and systolic blood pressure in Chinese nursing students

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SUMMARY

Background: Previous studies suggested that mindfulness meditation effectively reduced stress-related anxiety and depression symptoms, but no research has evaluated the efficacy of mindfulness meditation in nurses and nursing students in China.
Objectives: To evaluate the effects of brief mindfulness meditation on the anxiety and depression symptoms and autonomic nervous system activity in Chinese nursing students.
Design: A randomized controlled trial.
Setting: A medical university in Guangzhou, China.
Participants: One hundred and five nursing students were randomly approached by email and seventy-two responded. Sixty recruited students were randomized into meditation and control group (n=30 each) after screening and exclusion due to factors known to influence mood ratings and autonomic nervous system measures.
Methods: The meditation group performed mindfulness meditation 30 min daily for 7 consecutive days. The control group received no intervention except pre–post treatment measurements. The Self-Rating Anxiety Scale and Self-Rating Depression Scale were administered to participants, and heart rate and blood pressure were measured. Pre- and post-treatment data were analyzed using repeated-measures analysis of variance.
Results: Differences between pre- and post-treatment Self-Rating Anxiety Scale scores were significantly larger in the meditation group than in the control group, but no similar effect was observed for Self-Rating Depression Scale scores. Systolic blood pressure was reduced more after the intervention in the meditation group than in the control group, with an average reduction of 2.2 mm Hg. A moderate level of anxiety was associated with the maximum meditation effect.
Conclusions: Brief mindfulness meditation was beneficial for Chinese nursing students in reducing anxiety symptoms and lowering systolic blood pressure. Individuals with moderate anxiety are most likely to benefit from a short-term mindfulness meditation program.

Introduction

Mindfulness may be defined as ‘paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment’ (Kabat-Zinn, 2003). It demands the regulation of attention and an orientation to present-moment curiosity, openness, and acceptance (Bishop et al., 2004). Mindfulness meditation has been used traditionally for the systematic development of mindfulness (Carmody et al., 2008); it essentially involves focusing on the mind at present (Mars and Abbey, 2010), paying attention on purpose, in a moment-to-moment, nonjudgmental and nonreactive way (Rosenzweig et al., 2010).

As a clinical intervention strategy based on Buddhist philosophy, mindfulness meditation has been applied in diverse groups to enhance well-being and enable individuals to cope with stress (Irving et al., 2009). For example, mindfulness meditation was found to effectively improve the quality and duration of sleep in transplant recipients (Kreitzer et al., 2005), and to reduce depression, anxiety and psychological distress in patients with chronic somatic diseases (Bohlmeijer et al., 2010), chronic pain (Rosenzweig et al., 2010), and social anxiety disorder (Goldin and Gross, 2010).
Background

Given the growing shortage of nurses worldwide (Pipe et al., 2009), stress and burnout are serious problems for health care professionals (Irving et al., 2009; Watson et al., 2013; Wu et al., 2012). Clinical research has shown that nurses are at high risk for stress-related burnout (Rubia, 2009) and the development of psychological symptoms, including anxiety and depression (Kawano, 2008). Studies have suggested that nursing students also suffer from moderate stress, due in part to a lack of professional knowledge and skills (Chan et al., 2010). More than 10% of nursing college students experience moderate to severe anxiety, and nearly one-third score highly on depression symptom measures (Zhang et al., 2007). To be well prepared to cope with their future work stress, to decrease professional burnout, and to improve care for their future patients, nursing students should learn how to manage stress and acquire emotion regulation skills and adaptive interpersonal capacities in the early stage of higher education (Kang et al., 2009).

Existing literature suggests that mindfulness meditation is a promising way for nurses and nursing students to achieve the above goals (Cohen-Katz et al., 2004). By learning the tenets of meditation, including awareness of the present moment, non-judging acceptance, patience, and kindness, nurses could cultivate appropriate understanding and sensitivity, which are essential in the provision of patient-centered, humanistic care in nursing practice (Dexter and Wash, 2000; Watson et al., 2013). Recent studies have shown that mindfulness meditation reduced stress and improved health in nurses. For example, one study found that a brief 4-week meditation intervention significantly improved burnout symptoms, relaxation, and life satisfaction in 16 nurses and nurse aides compared with 14 wait-list control participants (Mackenzie et al., 2006). Pipe et al. (2009) found that a 4-week mindfulness meditation course effectively reduced self-reported stress symptoms among nursing leaders. Chung et al. (2007) found that mindfulness meditation improved nurses' spirituality and practice of spiritual care. Unfortunately, an empirical study determined that contemporary Chinese nurses have very low levels of spirituality, as measured by the Psycho-Matrix Spirituality Inventory, of which mindfulness is one of seven factors (Yang and Mao, 2007). The authors inferred that Chinese nurses do not regularly set aside time for contemplation and self-reflection, have little need to associate with others, and tend to be comfortable being alone and pursuing their own activities.

Meanwhile, there is increasing interest in integrating meditation into higher education (Shapiro et al., 2011). Mindfulness has been found to improve coping skills and reduce emotional distress in medical students (Rosenzweig et al., 2003). Nursing students who have been taught the mindfulness meditation technique have shown improved subjective physical and mental health, empathy, and well-being (Beddoe and Murphy, 2004), reduced stress and anxiety (Kang et al., 2009) and enhanced their forgiveness (Oman et al., 2008). However, few studies to date have examined the effectiveness of mindfulness meditation in Chinese nursing students.

Moreover, a study found that the efficacy of meditation programs on physical and psychosocial outcomes was mediated by anxiety reduction of the participants (Cho et al., 2010). In an investigation of the role of anxiety in individual differences in mindfulness meditation, one study found a negative correlation between trait anxiety and naturally occurring mindfulness, suggesting that anxiety counteracted the attention control required for this meditation practice (Walsh et al., 2009). The inconsistency between the findings of Cho et al. (2010) and Walsh et al. (2009) suggests that whereas anxiety is antagonistic to naturally occurring mindfulness, paradoxically, the practice of mindfulness has the potential to reduce anxiety.

Study Purposes

The current study had two purposes. First, we tested whether baseline anxiety was associated with Chinese nursing students' subjective rating of the effectiveness of a mindfulness meditation program, e.g., whether participants with high anxiety levels were more likely than those with low anxiety levels to feel that the meditation program was helpful. This aspect of the study sought to determine the most appropriate target anxiety level for the meditation intervention. Second, we examined whether nursing students participating in the meditation intervention experienced reduced anxiety and depression, HR, SBP, and diastolic blood pressure (DBP) compared with a control group.

Methods

Design and Participants

A $2 \times 2$ (meditation group and control group $\times$ pre-post measurements) experimental design was used. The study was carried out between October 2010 and January 2011 at a medical university in Guangzhou, China. Student identification numbers were used to randomly select 105/460 first-year nursing students in the sample pool, who were sent email messages containing detailed information about the meditation program and study procedures and inviting them to participate. Students' correspondence information was obtained from the student management department after the study had been approved. Seventy-two students responded and agreed to participate. In semi-structured interviews, a licensed psychotherapist screened all participants for known factors that could influence measures of depression, anxiety, and autonomic nervous system activity. These factors included: 1) diagnosed mental disorders, such as schizophrenia, major depression, panic disorders, or personality disorder, according to the Chinese Classification of Mental Disorders (3rd edition) (Psychiatry Branch of Chinese Medical Association, 2001); 2) current use of psychoactive medication; 3) current participation in individual psychotherapy or group intervention programs; 4) cardiovascular disease, such as hypertension or arrhythmia; and 5) previous meditation experiences. On the basis of these criteria, 12 students were excluded and 60 students were recruited to the program. The participants were then randomly assigned to meditation and control groups (n = 30 each). A computer-generated random number table (containing “1’s and “2’s) was used to randomize pairs of participants: a participant receiving a designation of “1” was assigned to the meditation...
Mindfulness meditation training was provided on 7 consecutive days after the pre-treatment assessment on day 1. The training was guided by a senior psychological counselor proficient in the practice of mindfulness meditation techniques. The intervention was focused on teaching meditation-naive participants about the cognitive practice of mindfulness meditation, with no spiritual or religious emphasis, following the procedure of Zeidan et al. (2010a). Each session lasted approximately 30 min (See Table 1). On day 1, participants were taught how to concentrate on breathing with their eyes closed, and to non-judgmentally become aware of their thoughts, feelings, and sensations while focusing on the flow of breath through the nostrils (Wallace, 2006). The underlying philosophy of mindfulness was also taught, emphasizing that participants should try to quietly the mind by simply allowing invasive or discursive thoughts to pass by, while paying attention to the breath and focusing on the dynamic sensations of the whole body (Wallace, 2006). On days 2–7, participants practiced mindfulness guided by 30 min of standardized instruction, modified according to Salmon et al. (2004). This practice incorporated traditional Chinese Buddhist cultural concepts, such as emphasis on the use of “internal eyes” to scan bodily sensations, according to the method used in an empirical study (Yang et al., 2011). The background music “Airy Voice” (Bandari, 1990) was played throughout the meditation process, as in an empirical study by Yang et al. (2011), to help practitioners maintain focus.

### Outcome measures

**Mood Assessment Questionnaires**

Participants in the meditation and control groups completed mood assessment questionnaires before and immediately after the 7-day intervention. The Chinese version of the Self-Rating Depression Scale (SDS) (Zung et al., 1965) was used to examine depression symptoms. Each instrument included 20 items, four-point scale ranging from 1 to 4, with total scores ranging from 20 to 80. These questionnaires have exhibited good psychometric properties (Dunn and Sacco, 1989; Olatunji et al., 2006).

**Autonomic Nervous System Activity Measures**

Autonomic nervous system activity measures, including HR, blood pressure (BP), respiratory rate, and skin conductance, are commonly used to indirectly reflect an individual’s emotional response to environmental stimuli. Among them, HR and BP are convenient, reliable, objective measures that could be taken in our laboratory by a trained research associate using a digital upper arm sphygmomanometer (Model HEM-1000; Omron CO., LTD., Shanghai, China). In the meditation group, HR and BP were measured pre- and post-intervention daily at a 30-minute interval (20:00 and 20:30) for 7 consecutive days; in the control group, HR and BP were measured at 20:00, following the procedure of Zeidan et al. (2010a). Each session lasted approximately 30 min (See Table 1).

![Flowchart of sampling and group assignment.](image)

**Table 1**
The meditation activities and measurement at day 1 to day 7.

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Intervention activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1</td>
<td>19:55</td>
<td>Pre measurements: SDS, SAS, heart rate and blood pressure</td>
</tr>
<tr>
<td></td>
<td>20:00</td>
<td>Participants were taught how to concentrate on breathing to become aware of their thoughts, feelings and senses. They were also taught the underlying philosophy of mindfulness to quiet their mind by simply allowing invasive or discursive thought pass by</td>
</tr>
<tr>
<td></td>
<td>20:35</td>
<td>Post measurements: heart rate and blood pressure</td>
</tr>
<tr>
<td>Day 2–6</td>
<td>19:55</td>
<td>Pre measurements: heart rate and blood pressure</td>
</tr>
<tr>
<td></td>
<td>20:00</td>
<td>Participants practiced mindfulness guided by 30 min standardized instruction.</td>
</tr>
<tr>
<td></td>
<td>20:35</td>
<td>Post measurements: heart rate and blood pressure</td>
</tr>
<tr>
<td>Day 7</td>
<td>19:55</td>
<td>Pre measurements: heart rate and blood pressure</td>
</tr>
<tr>
<td></td>
<td>20:00</td>
<td>Participants practiced mindfulness guided by 30 min standardized instruction.</td>
</tr>
<tr>
<td></td>
<td>20:35</td>
<td>Post measurements: SDS, SAS, heart rate and blood pressure</td>
</tr>
</tbody>
</table>

Note: the standardized instruction was modified according to Salmon et al. (2004), with the incorporation of traditional Chinese Buddhist culture, such as emphasis on the use of ‘internal eyes’ for scanning the bodily sensations according to the method used by an empirical study (Yang et al., 2011).

5 Confucianism, Buddhism, and Taoism are the major religions that have shaped Chinese culture. All participants in this study were non-religious, but they had been deeply culturally influenced by these religions. The use of “internal eyes” to scan bodily sensations was developed and validated in an empirical study conducted by Yang et al. (2011).

6 Confucianism, Buddhism, and Taoism are the major religions that have shaped Chinese culture. The present participants were all non-religious; however, they are deeply influenced by the above religions. The use of “internal eyes” for scanning the bodily sensations is developed and validated in an empirical study conducted by Yang et al. (2011).
the same time. Participants in both groups were instructed to remain relaxed while listening to music before the second BP and HR measures were taken. To eliminate the impact of diurnal fluctuation in BP and HR on outcome measures, treatments were performed at a fixed time (20:00–20:30) every day. Mean pre- and post-treatment scores were calculated using values from 7 days in the meditation group and from 2 days in the control group. To avoid the impact of physical activity on outcome measures, participants were required to sit quietly for 5 min before pre-treatment measures were taken.

**Subjective Ratings of Intervention Efficacy**

Immediately after the completion of the 7-day intervention, participants in the meditation group were asked to rate the effectiveness of the intervention program on a 10-point analog scale, with “1” indicating that the program provided no help at all and “10” indicating that the program provided the maximum level of help.

**Ethical Considerations**

The protocol for this study was approved by the first author’s institutional academic review committee. A trained research associate described the study objectives and procedures to participants before they provided written informed consent. All participants received RM2 5 Yuan after completing the program. Participation was voluntary, confidential, and anonymous, and participants were allowed to withdraw at any time throughout the program.

**Statistical Analysis**

Data were analyzed using the Statistical Package for the Social Sciences (version 15.0; SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to assess the distribution of socio-demographic characteristics in the meditation and control groups. Independent t-tests were used to test the homogeneity of the sample. Repeated-measures analysis of variance (ANOVA) was used to assess changes in outcome measures between the meditation and control groups with group serving as the between-subject factor and pre-post-treatment as the within-subject factor. The effect of interest was the interaction between these factors. A separate ANOVA was conducted to examine the effects of the intervention on different outcome measures. Partial eta-squared values were reported as measures of effect size. The Huynh–Feldt correction was applied in cases that violated the sphericity assumption. Regression analysis (including curve estimation) was performed to assess the influence of pre-intervention anxiety level on the subjective rating of the intervention program’s effectiveness, with subjective effectiveness ratings serving as the dependent variable and pre-intervention SAS scores as the independent variable. Statistical significance was set at p<0.05.

**Results**

**Sample Description**

The mean age of all participants was 19.5±0.87 (range, 18–22) years, and age did not differ significantly between the meditation (19.4±0.85 years) and control (19.7±0.88 years) groups [F(1, 58) = 1.34, p=0.186]. Eight participants (4 per group) were men and fifty-two (26 per group) were women. All participants were single undergraduate nursing students of Han ethnicity. No participant had Christian, Buddhist, Catholic, Islamic, or Taoist religious beliefs. Demographic characteristics and pre-intervention outcome measures did not differ between the meditation and control groups (t-tests, all p > 0.05).

**Intervention Effects on Mood Assessment Scales**

Table 2 presents the effects of the intervention on SAS and SDS scores. Repeated-measures ANOVA revealed that the group×pre-post interaction was significant for SAS scores [F(1, 58) = 25.42, p<0.001, η² = 0.31], indicating that post-intervention SAS scores were significantly more reduced in comparison with pre-intervention scores in the meditation group than in the control group. The group×re-post interaction was not significant for SDS scores [F(1, 58) = 3.13, p=0.082, η² = 0.05], indicating that the change in SDS scores (pre- vs. post-intervention) was comparable between groups.

**Intervention Effects on Autonomic Nervous System Activity Measures**

Table 3 presents the effects of the intervention on participants’ HR and BP. Repeated-measures ANOVA revealed that the group×pre-post interaction was not significant for HR [F(1, 58) = 1.49, p = 0.228, η² = 0.03], indicating that the change in HR (pre- vs. post-intervention) was comparable between groups. The group×pre-post interaction was significant for SBP [F(1, 58) = 4.73, p = 0.034, η² = 0.08], indicating that post-intervention SBP was significantly more reduced (by a mean of 2.2 mm Hg) in comparison with pre-intervention values in the meditation group than in the control group. The group×pre-post interaction was not significant for DBP [F(1, 58) = 1.19, p = 0.280, η² = 0.02], indicating that the change in DBP (pre- vs. post-intervention) was comparable between groups.

**Subjective Ratings of Intervention Effectiveness**

The mean subjective rating of the effectiveness of the mindfulness intervention was 5.2 (standard deviation, 1.4). Regression analysis found no linear relationship between pre-intervention anxiety level and subjective effectiveness rating [R² = 0.016, F(1, 28) = 0.44, p=0.511], but the quadratic component was significant [R² = 0.482, F(2, 27) = 12.55, p<0.001], indicating that the effect of meditation was best among those with moderate anxiety (Fig. 2).

**Discussion**

Previous studies have shown that full-time nurses in China and abroad must juggle multiple demands and cope with time pressure (Lu et al., 2007; Pisanti et al., 2011). Nurses should be trained to manage stress and negative emotions from the beginning of their professional education. The current study focused on mindfulness meditation, a relatively new and promising intervention for stress reduction. We found that a brief mindfulness meditation program effectively reduced anxiety symptoms and SBP in Chinese nursing students.

Our finding that a brief mindfulness meditation intervention reduced anxiety is generally consistent with the results of previous studies. Korean nursing students benefited from a mindfulness meditation program aimed at reducing perceived stress-related anxiety (Kang et al., 2009). Jain et al. (2007) found that, compared with somatic relaxation intervention, mindfulness meditation could reduce anxiety by reducing distracting and ruminiative thoughts and behaviors. As a mood state, anxiety usually refers to the experience of fear, apprehensiveness, nervousness, panic, restlessness, tension, and agitation. The experience of anxiety is typically accompanied by
Physiological arousal (Hoehn-Saric and McLeod, 2000). However, few studies have simultaneously investigated anxiety reduction and the physiological changes achieved by psycho-behavioral interventions. In line with the existing findings (Han, 2002; Yang et al., 2010), the current study demonstrates that the reduction of anxiety by a psycho-behavioral intervention concomitantly slowed autonomic nervous system functioning.

Although much research has demonstrated the anxiety reduction effect of mindfulness meditation, the most appropriate target anxiety level for meditation intervention remained unexplored. Importantly we found that baseline anxiety level was associated with the subjective rating of mindfulness meditation program effectiveness. Although we found no significant linear relationship between pre-intervention anxiety level and the rating of intervention effectiveness, curve estimation revealed a reversed U-shaped approximation. This finding suggests that subjects with moderate levels of anxiety, rather than those with very low or very high levels, benefit optimally from mindfulness meditation. Anti-anxiety medication might be superior to short-term psychosocial-behavioral intervention for individuals with high anxiety levels. However, this study did not examine the long-term effects of mindfulness meditation, and individuals with high anxiety levels might benefit from a long-term mindfulness-based program. Existing findings have supported such a speculation (Carlson et al., 2007).

Post-intervention SDS scores were reduced more in the meditation group than in the control group (1.8 vs. 0.4). However, because the group × pre-post interaction was not significant for SDS scores, we could not conclude that the intervention effectively reduced participants’ depression symptoms. This negative finding may be explained by the brevity of the intervention program in comparison with full-length mindfulness-based stress reduction programs, resulting in a smaller effect size than obtained in a previous study (Grossman et al., 2004).

In agreement with previous findings that meditation practice was associated with reduced peripheral physiological arousal (Cahn and Polich, 2006; Rubia, 2009; Wenk-Sormaz, 2005; Zeidan et al., 2010b), we found a significant post-intervention decrease in SBP (by 2.2 mm Hg) and non-significant reductions in HR (by 3.4 bpm) and DBP (by 1.0 mm Hg) in the meditation group. These values indicate a smaller reduction in autonomic nervous system functioning than those found by Carlson et al. (2007). This difference may be explained by the dose-dependent relationship between the length and effect of the mindfulness program, which has been supported by the findings of research on experienced meditators, in whom increased mindfulness was associated with increased well-being (Falkenström, 2010). However, the reliability of the dose-dependent relationship between mindfulness program length and physiological effects must be investigated further. Our study findings suggest that even a very brief (≤1 week) mindfulness program had reliable psychological and physiological benefits, most importantly the reduction of anxiety and physiological arousal.

Mindfulness is a practice rooted in Buddhism that has long been associated with spiritual development (Carmody et al., 2008). Within this context, mindfulness is the critical factor in the path to liberation and subsequent enlightenment, and plays a central role in the development of wisdom. Numerous Buddhist spiritual masters have practiced mindfulness in different settings. Research abroad has shown that Buddhist practice improved practitioners’ depressive symptoms (Rungeangkulki et al., 2011). Buddhism has thrived in China since ancient times and has played an important role in shaping the mindset of Chinese people, influencing their philosophy, esthetics, literature, and medicine practice (Goossart, 2006). Nevertheless, few studies have systematically evaluated the effects of mindfulness practice on practitioners’ psychological and physiological well-being in China. Although the participants in our study were non-religious, they had been deeply influenced by Buddhism and accepted a mindfulness meditation program in which traditional Chinese Buddhist cultural concepts were integrated. Our findings suggest that mindfulness meditation practice could play a promising role in maintaining practitioners’ mental and physiological well-being, regardless of religious beliefs.

One major limitation of the current study was that the control group lacked the social support and anticipatory effect embedded in the meditation group, which prevented us from distinguishing the pure meditation effect from a placebo effect. The study was also limited by the predominantly female sample population and small numbers included in the calculation of group means, which provided insufficient statistical power to detect a small effect size. Furthermore, we did not measure the level of mindfulness, and thus could not determine whether it was increased by the intervention. The intervention period was short and did not include home practice, and follow-up effects were not assessed. To determine whether a longer mindfulness program is superior to this short program, a longitudinal study with a longer follow-up period is needed. Moreover, we did not calculate the appropriate sample size prior to conducting the study because we lacked the effect size (Cohen’s d) estimation for this calculation. The study was also limited by the possibility that stress levels, anxiety and depression symptoms, and responses to a novel intervention program might differ between college-level nursing students and professional nurses; thus, caution should be taken when generalizing the findings of the current study to a wider professional nursing population.

Table 3

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>F(1,58)</th>
<th>P</th>
<th>η²</th>
<th>F(1,58)</th>
<th>P</th>
<th>η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>HR</td>
<td>71.6±7.5</td>
<td>68.2±4.3</td>
<td>1.49</td>
<td>0.228</td>
<td>0.03</td>
<td>1.19</td>
<td>0.280</td>
<td>0.02</td>
</tr>
<tr>
<td>Meditation</td>
<td>71.7±7.7</td>
<td>69.7±5.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBP</td>
<td>105.4±10.7</td>
<td>103.2±10.3</td>
<td>4.73</td>
<td>0.034</td>
<td>0.08</td>
<td>1.19</td>
<td>0.280</td>
<td>0.02</td>
</tr>
<tr>
<td>Control</td>
<td>107.8±10.9</td>
<td>107.1±10.3</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>DBP</td>
<td>71.5±11.0</td>
<td>70.5±10.8</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>70.5±8.7</td>
<td>70.1±8.6</td>
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</table>

Note: HR: heart rate; BP: blood pressure; SBP: systolic blood pressure; DBP: diastolic blood pressure. ANOVA: analysis of variance.

F: interaction effect of group by pre-post.

Fig. 2. Curve estimation of pre-intervention SAS score on subjective rating of effectiveness of meditation program.
Conclusions
The findings of the current study suggest that a brief mindfulness meditation program was beneficial for Chinese nursing students in reducing anxiety symptoms and lowering SBP, and that individuals with moderate anxiety are most likely to benefit from such a program.

Implications for Nurse Education
The mindfulness meditation program, a stress-reduction intervention, is a non-pharmacological approach that teaches skills in emotional and autonomic nervous system regulation. Its emphasis on self-care, compassion, and healing makes it an effective intervention for stress management and the reduction of burnout among nurses (Cohen-Katz et al., 2004). Mindfulness meditation can provide Chinese nursing students with a simple, effective way to cope with anxiety, reduce anxiety-elicited physical arousal, and achieve mental well-being and professional growth in their future careers.

Contributions
Study design: YC, X-YZ; data collection and analysis: X-YJ; manuscript preparation: YC, L-YW, X-YZ.

Conflict of Interest
None.

Acknowledgments
In collection of the data, we would like to thank all the staff in Psychological Counseling Center of Southern Medical University for providing intervention equipment and site.

References


