Electronics and Communication Engineering, Koneru Lakshmaiah Exploring the Role of Hatha Yoga in Altering Dispositional Mindfulness

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Abstract

The present research study was an intervention study conducted to elucidate the effects of different Hatha yoga practices on dispositional mindfulness among young adults not characterized by any clinical condition. 280 participants were assigned to three different Hatha yoga intervention groups and a control group for duration of three months. Baseline and post interventions cores for mindfulness were recorded for all the four groups using the Five Facet Mindfulness Questionnaire. Data was analyzed using analysis of covariance for measuring the mean difference between-groups. A highly significant difference was observed between groups on the ability to observe and describe emotions/inner experiences and act with awareness, all of which are positive indicators of dispositional mindfulness. Analysis of \( t \)-test revealed maximum significant and positive change in dispositional mindfulness in the combined intervention group of yoga asana and pranayama and meditation, followed by the pranayama and meditation group and the yoga asana group, respectively. Findings reinforce Hatha yoga as a significant predictor of dispositional mindfulness and further contribute to the insufficient literature examining the psychological benefits associated with Yoga among adult masses with no specific clinical condition. It further suggests employing stronger interventional research designs and a mixed-method approach for in-depth assessment of participant experience to accurately evaluate the benefits associated with specific yoga practices and their effects on dispositional mindfulness.

Keywords: Hatha yoga, mindfulness, FFMQ, clinically healthy adults.

Introduction

This research is intrigued and inspired by the growing emphasis on Yoga in the effective management of mental health problems and as an aid to improve mental health status.\(^6\),\(^16\) Much awareness and popularity is witnessed among the clinically healthy population to adopt Yoga as a medium for advancing health standards, preventing health-related issues, and as a spiritual pursuit. Research identifies Yoga as an integral component of mindfulness-based interventions.\(^2\),\(^4\) Empirical efforts in relation with investigating the effects of yoga-based interventions on mindfulness among young Indian adults have largely targeted an audience characterized with specific conditions associated with aggression\(^2\),\(^4\), stress\(^1\), emotional regulation\(^7\), memory and concentration\(^5\), clinical conditions\(^1\), thereby, creating a need to understand the effects of Yoga on dispositional mindfulness among young adults recruited in an intervention without the basis of a clinical condition. Sizeable research efforts in the previous years have been vested into examining Yoga in relation to mindfulness as a single measure.\(^2\),\(^4\),\(^5\) However, a noticeable gap has been identified in literature addressing how Yoga affects different facets of mindfulness independent of each other. This research investigation was conducted with an aim to examine the association between Hatha yoga and the five facet construct of mindfulness.\(^1\) Along with endorsing mindfulness as a multidimensional construct, this study also intended to examine a greater need of its individual subcomponents– observing of emotions/inner experiences, describing of emotions/inner experiences, acting with awareness, non-judging towards emotions/inner experiences and non-reactivity towards emotions/inner experiences as critical aids in mental health.
promotion among young adult masses characterized with no specific clinical condition.

**Materials and Method**

**Aim:** To examine the difference in effects of Hathayoga practices on five facets of mindfulness among young adults characterized with no specific medical condition.

**Objectives:** To investigate the mean difference between groups– (I) yoga asana (II) pranayama and meditation (III) combined intervention of yoga asana and pranayama meditation, and (IV) control group after 3-months of intervention.

**Hypotheses:** It is hypothesized that Hatha yoga will play a significant role in enhancing the subcomponents of mindfulness. Further speculations are made that the intervention group III will exhibit most significant and positive effects on five facets of mindfulness as compared to intervention groups I and II, as a result of a composite, more advanced, and systematically designed approach.

**Participants:** Study recruited 280 participants aged between 25-35 years and selected as a result of convenience sampling. Participants were divided into Intervention Groups (N=210) and Control Group (N=70). The intervention groups were further subdivided into three groups with equal number of participants (70 each), in order to study the difference in effects of three different Hatha yoga interventions– (I) Yoga Asana, (II) Pranayama and Meditation, and (III) Yoga Asana + Pranayama and Meditation. The Control Group (IV) comprised of participants who were not actively engaged in any form of mind-body-spiritual practices or physical exercise. The premises was the intervention Morarji Desai National Institute of Yoga, New Delhi.

**Interventions:**

**Yoga Asana:** The intervention schedule was designed for a period of 3-months with 3 days in a week. Everyday module included theory as well as practical ranging between 2.5-3 hours on an average. The content of theory and practical was evenly distributed and covered over the intervention period.

**Pranayama and Meditation:** The intervention schedule was designed for a period of 3-months with 3 days in a week. The everyday module included theory as well as practical ranging between 2.5-3 hours on an average. The content of theory and practical was evenly distributed and covered over the intervention period.

**Combined Intervention:** This intervention incorporated a combination of both, yoga as an as well as pranayama and meditation. The intervention schedule was designed for a period of 3-months with 6 days in a week. This group was given the yoga as an a intervention for 3 days and the pranayama and meditation for 3 days. The module for each day included theory as well as practical ranging between 2.5-3 hours on an average.

**Instrument**

Data was collected using the preliminary information form standardized by the institution and the Five Facet Mindfulness Questionnaire (FFMQ).1

In order to test the hypotheses, the measurement of following dependent variables was required:

1. Observing of Emotions/Inner Experiences
2. Describing of Emotions/Inner Experiences
3. Acting with Awareness
4. Non-Judging towards Emotions/Inner Experiences
5. Non-Reactivity towards Emotions/Inner Experiences

**Data Analysis:** Data analysis was performed using SPSS 24.0. The analysis involved computation of means and SD. The mean difference between-groups was calculated through ANCOVA along with the effectiveness of the interventions which was ascertained using Paired t-Test.

**Results**

The results obtained upon analysis of covariance indicated an overall significant difference between groups on the facets of ‘Observing’ (F=4.93, p<.01), ‘Describing’ (F=2.68, p≤.05), and ‘Acting with Awareness’ (F=3.30, p<.05), with their corresponding pretest scores used as covariate.
Table 1: Pairwise Comparisons of Post Adjusted Means

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(I) Groups</th>
<th>(J) Groups</th>
<th>Mean Difference (I-J)</th>
<th>Sig.b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observing</td>
<td>4</td>
<td>1</td>
<td>-1.13**</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>-1.02**</td>
<td>0.01</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>-0.96*</td>
<td>0.02</td>
</tr>
<tr>
<td>Describing</td>
<td>4</td>
<td>1</td>
<td>-0.27</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>-0.6</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>-0.62</td>
<td>0.09</td>
</tr>
<tr>
<td>Acting with Awareness</td>
<td>4</td>
<td>1</td>
<td>-0.43</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>-0.67*</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>-0.70*</td>
<td>0.04</td>
</tr>
<tr>
<td>Non-Judging</td>
<td>4</td>
<td>1</td>
<td>0.33</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>0.50</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>0.67</td>
<td>0.21</td>
</tr>
<tr>
<td>Non-Reactivity</td>
<td>4</td>
<td>1</td>
<td>0.73</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1</td>
<td>-0.47</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>-0.40</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Significance at 0.05 level, **Significance at 0.01 level

Table 1 presents the post hoc pair wise comparison of adjusted means, indicating a significant difference between each of the intervention groups and the control group for ‘Observing’. A significant difference was also observed between intervention groups II and III and the control group on ‘Acting with Awareness’.

Table 2: Mean Differences within Groups Post Intervention

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Pretest-Posttest</th>
<th>IG-I (YA) (N=70)</th>
<th>IG-II (PM) (N=70)</th>
<th>IG-III (YA+PM) (N=70)</th>
<th>CG-IV (CG) (N=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>t</td>
<td>Sig.</td>
<td>t</td>
<td>Sig.</td>
</tr>
<tr>
<td>1</td>
<td>Observing</td>
<td>2.14</td>
<td>0.04</td>
<td>2.24</td>
<td>0.03</td>
</tr>
<tr>
<td>2</td>
<td>Describing</td>
<td>1.37</td>
<td>0.18</td>
<td>1.94</td>
<td>0.06</td>
</tr>
<tr>
<td>3</td>
<td>Acting with Awareness</td>
<td>2.24</td>
<td>0.03</td>
<td>2.29</td>
<td>0.03</td>
</tr>
<tr>
<td>4</td>
<td>Non-Judging</td>
<td>2.01</td>
<td>0.05</td>
<td>2.35</td>
<td>0.02</td>
</tr>
<tr>
<td>5</td>
<td>Non-Reactivity</td>
<td>2.05</td>
<td>0.04</td>
<td>2.12</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Figure 1: Graph Representing Effects of Intervention in Intervention Groups
Table 2 and Figure 1 validate the speculations made for the group III, wherein findings for within-group difference indicate that this group exhibited greatest significant difference and scored highest on four out of five facets of mindfulness followed by group II and group I, respectively.

Discussion

Analysis of covariance indicated a significant effect on the mean difference between intervention groups on observing emotions/inner experiences, describing of emotions/inner experiences, and acting with awareness post intervention. A common trend is observed across the findings of observing emotions/inner experiences, describing emotions/inner experiences, and acting with awareness, with the intervention group II experiencing most considerable positive change, followed by the intervention group I and III, respectively, in comparison to the control group.

Practices of pranayama and meditation operate primarily on the mind principle to conquer mental processes under voluntary control through the practice of concentrated attention and awareness, reinforcing a more significant role of mental faculties in practicing mindfulness. This claim was later reinforced by examining that pranayama and meditation involve greater voluntary control of mental capacities necessitating concentrated breath control, centering of attention on bodily sensations, maintenance of posture, and guided instructions at short intervals; aiming at elevating deeper states of consciousness by reassessing the state of mind and heightening mindfulness. Yogasanas, on the other hand, are a balanced blend of effort and ease, which teaches one to put in efforts to get into a posture, experience relaxation in that posture, and try to detach from the result. They operate on gross body level and are more than just mere physical exercises and a fundamental medium for a deeper understanding of mind and body. Every movement of the body has a direct correlation with the way mind responds to it.

A gain in mean scores of observing emotions/inner experiences after the interventions of pranayama and meditation and yogasana respectively, is attributed to the principles on which these practices operate. Pranayama and meditation are advanced practices with potential to lead to positive effects on observing inner experiences. Yogasanas involve equal engagement of mind and body on the premise of shaping the physiological state of the body to regulate emotions, thoughts, and attitudes, thereby maximizing the ability to observe internal and external experiences.

Describing of emotions/inner experiences refer to being able to explain inner experiences in words or label them. Participants reported guided meditation practice in playing an instrumental role in enabling them to reflect upon the experience of different thoughts and emotions and in allowing them to flow freely without fixating the mind on them. Obtained findings are supported with earlier research suggesting a positive impact of yoga and meditation on cognitive functionality. Meditation has reportedly led to a significant decrease in cortisol, a hormone which is responsible for having a quietening effect on mind. Lower pace of processing equipped the participants with an increased ability to differentiate between positive and negative affective states, which in turn helped them to attain clarity in thought and be able to identify and label their feelings and experiences with great ease. Active inhalation and exhalation during yogasanas and meditation have the potential to lead to significant structural changes in orbitofrontal and hippocampus regions in brain, larger volumes of which may account for positive emotions, retention of emotional stability, and engagement in mindful behavior. Regularity in these practices accounts for habitual changes among practitioners. Research findings indicate an increase in levels of oxygen and serotonin after practicing yogasanas, agents which are chief contributors in channelizing the mind towards experiencing higher positivity, emotional stability, calmness, and organization in thoughts.

Obtained findings indicate significant positive effects on acting with awareness, suggesting greater control over thoughts and maximized attention towards the moment in hand after engaging in yoga. Participants reported feelings of a mental slow down post intervention allowing them more time for conscious engagement in everyday actions and self-reflection. This finding may be supported with a research investigation regarding yoga as a complex blend of physical, moral and spiritual practices aiming at attaining self-awareness and working on activating the inner energies to reduce the pace of mental activity, thereby leading to a clear state of mind.

Results of the study add to strength of association between yogasana, pranayama, and meditation, and components of dispositional mindfulness among young adults with no specified clinical condition. Obtained
findings may substantially support yoga-based controlled trials investigating the difference of effects between clinical and nonclinical population groups. A significant chunk of research in mindfulness has examined it as a single overarching construct, with less emphasis on investigating its subcomponents independent of each other. This investigation intended to bridge this gap by studying the five facets of mindfulness in relation with Hatha yoga to find them as independent yet interacting.

Implications: This study implicates adopting a more qualitative approach, such as a well-designed interview method, in gathering knowledge about participant experience after engaging in mind-body-spiritual practices. Considerable research initiatives have been undertaken in support of the health benefits associated with aggregated practice of yogasanas, pranayama, and meditation. Yet the results seem less conclusive of which one would be more favorable. Therefore, this study implicates stronger interventional research designs to provide in-depth insight into benefits associated with specific yoga practices. The study suggests further research incorporating and exploring the effects of extrinsic variables such as length of practice, time of practice and consistency in teaching instruction on psychological components, as these factors are integral to the success of a yoga-based intervention.

Source of Funding: Nil

Compliance with Ethical Standards:

Conflict of Interest Statement: Nil

Statement of Ethics and Human Rights: All procedures performed in studies involving human participants were in accordance with the ethical standards of Amity Institute of Psychology and Allied Sciences and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Ethical clearance was received by the research ethics committee of Amity Institute of Psychology and Allied Sciences, AUUP, before commencing the study.

Statement of Informed Consent: Informed consent was obtained from all individual participants included in the study.

References


