Mindfulness-based interventions (MBI) are effective therapies for a variety of psychological problems, especially for improving anxiety, mood disorders, and other stress-related conditions, and so may have potential application in and impact on national health systems on a cost-effective basis.\(^1\)\(^{-6}\) In Brazil, meditative practices, along with many other complementary and integrative therapies, have been encouraged and supported by the Ministry of Health, which established the National Policy on Integrative and Complementary Practices (PNPIC) inside the Brazilian National Health System in 2006.\(^7\) According to PNPIC, these actions should ideally be carried out by Primary Care (PC) teams, whose practitioners, including community health trainers, could be trained to implement MBI with the potential to impact on more than 100 million people. Despite this fact and the existing literature on meditation and health,\(^7\)\(^{-9}\) there is still a lack of studies on MBI in the Brazilian population. Culture-specific studies on MBI are in great need, and so our aim was to explore the impact of an MBI program on perceived stress (PS) and quality of life (QoL) in a healthy sample in Brazil.

A one-group pre-/post-test design was used to measure the impact of the mindfulness-based stress reduction (MBSR) program (eight-week; 2.5 h/wk; retreat-day) using the Brazilian validated version of the Perceived Stress Scale (PSS)\(^10\) and the WHOQOL-BREF questionnaire.\(^11\) The eligibility criteria included the following: (1) 18 years of age or older; (2) lack of any clinical problems or conditions; and (3) able to understand, read, and write in Portuguese. Subjects (\(n = 23\)) were students at a major public university who completed the evaluated scales prior to and at the end of the program (protocol period from September through December 2009).

All scores were transformed to a 100-point scale (ranging from 0 to 100 points, with 100 meaning the lowest PS and highest QoL). Paired \(t\)-tests were used to compare the final and baseline mean scores of those scales. Pearson correlations were also calculated between the changes from baseline. The Ethical Committee of the Federal University of São Carlos (UFSCar) approved the study protocol.

The participants were all single and with ages ranging between 18 and 27 years [mean = 20.7, standard deviation (SD) = 2.5]. 78.3% were female (\(n = 18\)), 77% were self-rated as white, and 13% as black. All participants completed at least six weeks of the program (17.4%, 52.1%, and 30.5% attended six, seven, and eight weeks, respectively). Improvements from baseline in PS (\(P = .001\)) and in all dimensions of WHOQOL-BREF (\(P \leq .003\)) were observed at the end of the intervention program. Stronger correlations were found between final changes from baseline in PS and QoL (overall and psychological domains of WHOQOL-BREF) and between changes in physical and psychological or environment domains of WHOQOL-BREF. Tables 1 and 2 summarize the main results.

We observed high levels of adherence to the MBSR program and demonstrated promising pre–post session intervention effects on PS and QoL in a Brazilian healthy sample. These preliminary results are similar to previous studies and reviews\(^1\)\(^{-2}\),\(^4\)\(^{-6}\),\(^12\),\(^13\) and support the feasibility of implementing MBI in Brazil. As expected, changes in PS are correlated but probably do not explain all changes in the QoL domains and vice-versa, and others variables, such as those related to improvements in anxiety and mood symptoms, self-awareness, -regulation, and -transcendence, may be involved.\(^2\),\(^5\),\(^6\),\(^14\)

It is interesting to notice this study was carried out during final examinations period, a well-known source of distress,\(^15\) which may make results more significant. On the other hand, results should be interpreted with caution because of the lack of a control group and the small sample size.

To the best of our knowledge, this is the first study conducted in Brazil exploring MBSR effects on a healthy sample of individuals, and demonstrating its potential health promotion benefits with overall improvement in PS and QoL. Mindfulness-based interventions may be suitable for the
general population in Brazil, and future research should be directed at determining intervention effects, cost-effectiveness, contribution of different programs and individual components, long-term outcomes, attitudes towards mindfulness, and impacts on clinical and nonclinical populations to foster and support an effective implementation of MBI in the Brazilian National Health System.

REFERENCES


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**Table 1.** Effect of MBSR Intervention on PSS and WHOQOL-BREF Scores

<table>
<thead>
<tr>
<th>Table 1. Effect of MBSR Intervention on PSS and WHOQOL-BREF Scores⁶</th>
<th>Baseline</th>
<th>After Intervention</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS perceived stress</td>
<td>23</td>
<td>54.19</td>
<td>2.18</td>
</tr>
<tr>
<td>WHOQOL-BREF overall quality of life</td>
<td>22</td>
<td>68.75</td>
<td>3.05</td>
</tr>
<tr>
<td>WHOQOL-BREF physical domain</td>
<td>22</td>
<td>66.72</td>
<td>2.71</td>
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<tr>
<td>WHOQOL-BREF psychological domain</td>
<td>22</td>
<td>67.23</td>
<td>3.02</td>
</tr>
<tr>
<td>WHOQOL-BREF social activity domain</td>
<td>22</td>
<td>72.73</td>
<td>2.91</td>
</tr>
<tr>
<td>WHOQOL-BREF environment domain</td>
<td>22</td>
<td>64.91</td>
<td>2.24</td>
</tr>
</tbody>
</table>

MBSR = mindfulness-based stress reduction; PS = perceived stress total score; WHOQOL-BREF = WHO quality of life questionnaire; n = number of respondents; SD = standard deviation; CI = confidence interval.

⁶All scores are presented in a hundred bases (0–100; 100 points meaning the lowest perceived stress and highest quality of life).

⁷One student did not complete the WHOQOL-BREF questionnaire.

⁸Paired t-test.

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**Table 2.** Pearson Correlations Between Final Changes From Baseline After a MBSR Intervention in PS and WHOQOL-BREF Mean Scores

<table>
<thead>
<tr>
<th>Table 2. Pearson Correlations Between Final Changes From Baseline After a MBSR Intervention in PS and WHOQOL-BREF Mean Scores</th>
<th>PS</th>
<th>WHOQOL-BREF Overall Quality of Life</th>
<th>WHOQOL-BREF Physical Domain</th>
<th>WHOQOL-BREF Psychological Domain</th>
<th>WHOQOL-BREF Social Activity Domain</th>
<th>WHOQOL-BREF Environment Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correlations Between Changes From Baseline</td>
<td>PS</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
</tr>
<tr>
<td>PS perceived stress</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>WHOQOL-BREF overall</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>quality of life</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>WHOQOL-BREF physical</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>domain</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>WHOQOL-BREF psychological domain</td>
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<td>0.417</td>
</tr>
<tr>
<td>WHOQOL-BREF social</td>
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<td>0.483⁶</td>
<td>0.138</td>
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<td>0.710⁶</td>
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<td>0.417</td>
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<tr>
<td>WHOQOL-BREF environment</td>
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<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
<tr>
<td>domain</td>
<td>1</td>
<td>0.483⁶</td>
<td>0.138</td>
<td>0.710⁶</td>
<td>0.325</td>
<td>0.417</td>
</tr>
</tbody>
</table>

MBSR = mindfulness-based stress reduction; PS = perceived stress total score; WHOQOL-BREF = WHO quality of life questionnaire.

⁶Correlation is significant at the 0.05 level (two-tailed).


