

Shadowboxing for Relief of Chronic Low Back Pain

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Chronic low back pain (CLBP) is a common symptom that can be associated with degenerative changes of the spine. The prevalence of low back pain ranges from 15% to 45% among different population subgroups, with the annual incidence averaging 30%.¹ In the U.S., low back pain is the most common cause of activity limitation and disability in people younger than 45 years, the

KEY POINTS

Chinese physicians have prescribed shadowboxing to relieve chronic low back pain (CLBP), but no evidence of its effectiveness exists in the previous literature.

This randomized controlled trial demonstrated relief of CLBP following participation in a 12-week program of shadowboxing exercise.

second most frequent reason for physician visits, the fifth-ranking cause of hospital admission, and the third most common condition treated with surgical procedures.²⁻⁴ Each year, about 2% of the U.S. workforce receives treatment for low back injuries, and Americans spend at least \$50 billion each

year for treatment of low back pain.⁵ CLBP is a common problem among both active and sedentary individuals in the U.S. Non-invasive treatments, such as tricyclic antidepressant, antibiotics, spinal manipulation, and behavioral therapy are commonly used to relieve CLBP.⁶⁻⁹ When such treatments are ineffective, invasive treatments are typically recommended, such as trigger point injections, acupuncture, disc decompression sur-

gery, lumber disc replacement surgery, and surgical fixation of lumbar segments.

Shadowboxing, which originated in ancient China, is becoming increasingly popular type of exercise around the world. Chinese physicians have prescribed shadowboxing as therapeutic exercise for some orthopedic conditions. Shadowboxing involves concurrent, circular, radial, and spiral motions that are believed to increase flexibility, enhance circulation, and strengthen the muscles of low back and extremities. Shadowboxing is also used to relax the body and mind, which is believed to improve mental and physical status. Because no evidence currently exists to support the purported benefits, the purpose of this study was to evaluate the effectiveness of shadowboxing for management of CLBP in adults under 60 years of age.

Procedures and Findings

A randomized clinical trial was conducted over a 12-week period. Participants with CLBP in the communities of Shuang feng ting, Qi hai hua yuan, and Fu quan hua yuan in Fuzhou Gulou district were randomly assigned to control and experimental groups (shadowboxing). Inclusion criteria were (a) 40-60 years of age, (b) 1-5 years duration of CLBP, (c) low back pain intensity > 40 mm on a 100-mm visual analog scale (VAS) within

the previous seven days, and (d) no treatment received during the preceding three months.

We invited 200 individuals who met the inclusion criteria to come to the orthopedic outpatient clinic affiliated with Fujian Medical University, where the study was conducted with the approval of the Human Research Ethical Committee. Of the 200 invited participants, 164 chose to voluntarily participate in the study, and 82 were randomly assigned to each of the two groups (Figure 1). Two teachers at Fujian Medical University instructed the participants in the shadowboxing group in the performance of a 24-step Chen-style shadowboxing exercise, which was performed 6 days per week for an hour each day. The shadowboxing exercises were completed in four cycles per session, with the intensity level adjusted to achieve an age-based heart rate ($170 - \text{age}$).¹⁰ The 24-step Chen-style

shadowboxing exercise components are presented in Table 1. Participants assigned to the control group were provided with suggestions for healthy living, but no exercise instruction was provided. During the study period, two control group participants and four experimental group participants dropped out of the study.

A Visual Analog Scale (VAS) was used to assess pain perception, and the SF-36 Health Survey was used to quantify both physical health (PH) and mental health (MH) status on a 0 to 100 scale.¹¹ A systematic medical examination was performed before and after the 12-week period. A total of 164 patients (43.5 ± 6.9 years of age) who had suffered from CLBP for an average of 3.04 ± 1.56 years participated. No statistically significant differences were found between the experimental and control groups in terms of average age, years of CLBP, body mass index, heart rate, blood

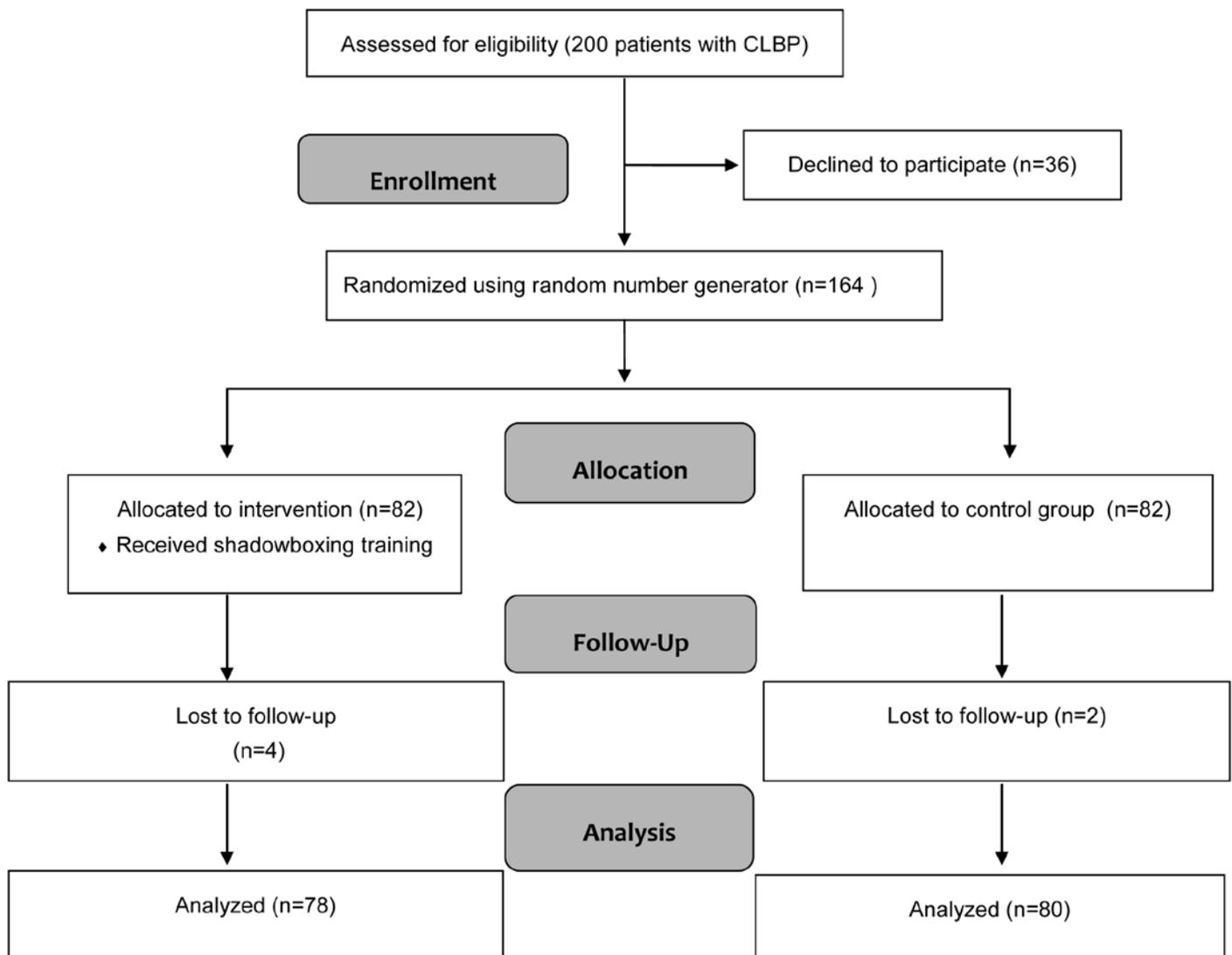


Figure 1 Participant recruitment and retention.