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Effects of the Mindfulness-Based Stress Reduction Program on Blood Pressure in Adults: A Literature Review

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Background: In spite of the advances in hypertension prevention and treatment, a high percentage of people has elevated or uncontrolled blood pressure. New patient-centered strategies are needed to support people managing hypertension and to reduce the impact of this risk factor on cardiovascular disease burden, mortality, and quality of life. Complementary behavioral treatments for blood pressure control, which are not a substitute for traditional treatment, can be evaluated for their potential to reduce blood pressure. Mindfulness-based interventions may be one of those treatments supporting self-management in people with hypertension. According to Jon Kabat-Zinn mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally. Therefore, a complementary behavioral treatment, the Mindfulness-Based Stress Reduction (MBSR) program needs to be evaluated for its potential to reduce blood pressure.

Aims: To evaluate the effectiveness of the MBSR program on blood pressure in adults diagnosed with hypertension or prehypertension.

Methods: The PICO question guiding the information search was: How effective is participation in a Mindfulness-Based Stress Reduction program on reducing systolic and diastolic blood pressure in people with hypertension and prehypertension? A systematic literature review was conducted of randomized control trials reporting the effectiveness of the MBSR program on systolic and diastolic blood pressure in adults with hypertension or prehypertension, published in English or Spanish between 2012 and 2017. Five databases were searched (PubMed, EMBASE, Web of Science, PsychINFO, and Cochrane Library). Data about the study methods, characteristic of population, the intervention and control group, outcomes, and findings of interest was extracted. Also, risk-of-bias assessment of the study was performed.

Results: A total of 87 articles were retrieved in the initial search. After applying eligibility criteria, a total of 5 articles were included in the review. All studies were randomized control trials, one from USA, two from Iran and one from Canada. Based on the Cochrane Collaboration's tool for assessing the risk of bias, most studies had unclear or low risk of bias. Control groups used in the studies were heterogeneous and ranged from passive control groups such as wait list or no treatment to active control groups such as social support and progressive muscle relaxation. Two studies measured blood pressure in the clinical setting only, one measured only ambulatory blood pressure only and one measured both clinical and ambulatory blood pressure. Most studies found a reduction in systolic and diastolic blood pressure between the intervention and control groups, however this reduction was only observed in clinical blood pressure measurements and not in ambulatory blood pressure. Analysis within intervention groups suggests that MBSR program reduces clinical blood pressure measurements. Even though, these reductions in blood pressure may be of clinical relevance, the findings should be interpreted with caution in view of the lack of studies and study limitations.

Conclusion: Most studies found the intervention group had more reductions in systolic and diastolic blood pressure than control groups, however this reduction was only observed in clinical and not in ambulatory blood pressure. Moreover, within group analysis suggests that the MBSR program reduces clinical blood pressure in the intervention group from pre to post test, and those reductions may be of clinical relevance. In spite the limited evidence, preliminary findings of the effectiveness of mindfulness-based stress reduction program on blood pressure in people with prehypertension and hypertension reveals that this intervention may be a promising behavioral complementary therapy to assist people with raised blood pressure lower their blood pressure through modifications in their lifestyle. More research is

needed not only to determine the effectiveness of the mindfulness based stress reduction program on blood pressure but also to explore the mechanisms by which the program influences blood pressure.

Title:

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Keywords:

Blood pressure, Mindfulness and Systematic Review

References:

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Abstract Summary:

The purpose of this session is to enable the learner to identify the effect of RCTs using a mindfulness-based intervention called mindfulness-based stress reduction program on blood pressure in adults with

hypertension or prehypertension. This knowledge will help participants to understand the potential of complementary treatments for blood pressure management.

Content Outline:

- I. Background
 - a. Uncontrolled blood pressure
 - b. New self-management strategies needed for blood pressure control
 - c. Mindfulness-based stress reduction (MBSR) program as a complementary behavioral treatment
- II. Aim
- III. Methods
 - a. PICO question
 - b. Eligibility criteria
 - c. Data search
 - d. Data extraction and quality assessment
 - e. Results
 - f. Search outcome
 - g. Study characteristics
 - h. Risk of bias
 - i. Intervention and control group characteristics
 - j. Blood pressure measurement
 - k. Effect of the MBSR program on blood pressure
 - i. Between group analysis
 - ii. Within group analysis
- IV. Conclusion
 - a. Based on preliminary findings MBSR program may be a promising behavioral complementary blood pressure therapy
 - b. More research is needed in this field

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Author Summary: Dr. Ana Solano is a professor and researcher at University of Costa Rica. With the support of scholarships from the University of Costa Rica and the Ministry of Science and Technology,

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