



## Original Article

## Benefits of Walking on Menopausal Symptoms and Mental Health Outcomes among Chinese Postmenopausal Women

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## SUMMARY

**Background:** Menopausal transition is often associated with impaired satisfaction with life (SL). Exercise is promising in both managing menopausal symptoms and improving subjective well-being of women after menopause.**Purpose:** This study examined the effects of a 4-month randomized controlled walking trial on menopausal symptoms and SL in 80 community-dwelling postmenopausal Chinese women (M age = 53.38, SD = 3.41), and identified predictors of changes in SL across the intervention.**Methods:** Participants completed assessment of physical activity, body composition, menopausal symptoms, and a battery of psychological measures before and after the intervention.**Results:** Walking was effective in reducing menopausal symptoms and depression as well as enhancing physical self-esteem and SL. In addition, changes in physical activity, menopausal symptoms, BMI, physical self-esteem, and depression were predictors of change in SL across the intervention.**Conclusion:** Walking could be recommended for post-menopausal women to manage menopausal symptoms and promote psychological well-being. Life satisfaction may be enhanced through the improvement of mental and physical parameters (e.g., menopausal symptoms, BMI and depression).Copyright © 2017, Taiwan Society of Geriatric Emergency & Critical Care Medicine. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

## 1. Introduction

Post-menopause can be associated with persisting menopausal symptoms and increased risk of a number of health conditions<sup>1</sup>, and therefore substantially reduce satisfaction with life (SL)<sup>2</sup>, a key component of subjective well-being (SWB). Although accumulating evidence has linked exercise with positive health-related outcomes among postmenopausal women, there have been methodological limitations and inconsistent findings. First, previous empirical studies have revealed positive changes in menopausal symptoms<sup>3</sup> and SL<sup>4</sup> as a result of physical activity (PA). However, some other studies<sup>5</sup> reported that more PA is associated with non-significant health benefits, and even with risk of greater severity and frequency of menopausal hot flashes<sup>6</sup>. Therefore, more well-designed

exercise trials are needed to explore the relationship between exercise and well-being among postmenopausal women.

Further, the majority of previous studies focused on the effects of exercise on menopausal symptoms and physiological outcomes (e.g., changes in body composition and bone density), inadequate attention has been paid to psychological outcomes<sup>7</sup>. Menopausal symptoms may influence mental health outcomes among menopausal women, such as depression, self-esteem, loneliness, and anxiety, which may significantly reduce their SWB<sup>4</sup>. Both qualitative<sup>7</sup> and quantitative studies<sup>4,8</sup> of menopausal women suggest that PA leads to benefits in SWB. However, studies investigating the relationship between PA and SWB have been limited in the lack of incorporation of other mental health factors (i.e., depression, anxiety, physical self-esteem) despite their correlations with menopausal symptoms, PA and SWB<sup>4,9</sup>.

In addition, current exercise intervention studies tend to focus on postmenopausal women in developed nations. Few intervention studies targeting Chinese women have been reported. Given that significant differences in the duration, severity, and impact of menopausal symptoms exist across individuals and racial groups<sup>10</sup>,

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more empirical evidence from intervention studies in China is needed to help understand the effect of exercise on menopausal symptoms and SWB, as well as the key factors that are associated with such effect, which should help better design tailored exercise interventions.

In recent decades, China has witnessed a rapid growth in urban population. The majority of urban postmenopausal women reside in highly populated communities, where group exercises are popular. Given that walking is the most preferred exercise and leads to a number of physical benefits for menopausal women<sup>11</sup>, we conducted a 16-week randomized walking trial among a sample of community-dwelling postmenopausal women in China. We aim to examine the effect of exercise on menopausal symptoms and mental health outcomes, including self-esteem, loneliness, depression, and life satisfaction. In addition, we explore whether menopausal symptoms, PA, physiological factors, and mental health indicators are implicated in changes in life satisfaction across the intervention.

## 2. Methods

### 2.1. Participants recruitment

The study protocols were approved by the local Institutional Review Committee. Through subject referral, health talks and advertisements posted in local communities, potential subjects were recruited from two large communities in Hangzhou, China.

Inclusion criteria are: between the ages of 45–65 yrs, entered the menopausal period naturally, has not menstruated within at least 12 months, have no severe metabolic and endocrine diseases, not receiving hormone replacement treatment, or chemotherapy/radiotherapy for any cancer types, able to exercise regularly for the next 4 months. Participants were informed about the study purpose and protocols, and provided written informed consent prior to enrollment. A description of participant recruitment and flow through the intervention is presented in Fig. 1. The study recruitment started Dec 2013, and exercise intervention lasted from Feb to Jun 2014.

### 2.2. Intervention

The 4-month exercise intervention included both health education and walking exercise. The health education consists of video watching and group discussion organized every two weeks. The walking group met 3 times per week for 16 weeks under the supervision of a trained exercise leader. In each 1-hour walking session, participants walked on a walking trail in a park adjacent to the communities they reside, for 40 min at an intensity equivalent to 60% of heart rate reserve (HRR), and conducted 10 min of pre-exercise warm-up and post-exercise cool-down, respectively. Exercise intensity was prescribed using the Karvonen method, starting at 50% of the heart rate reserve and gradually increasing to 60%

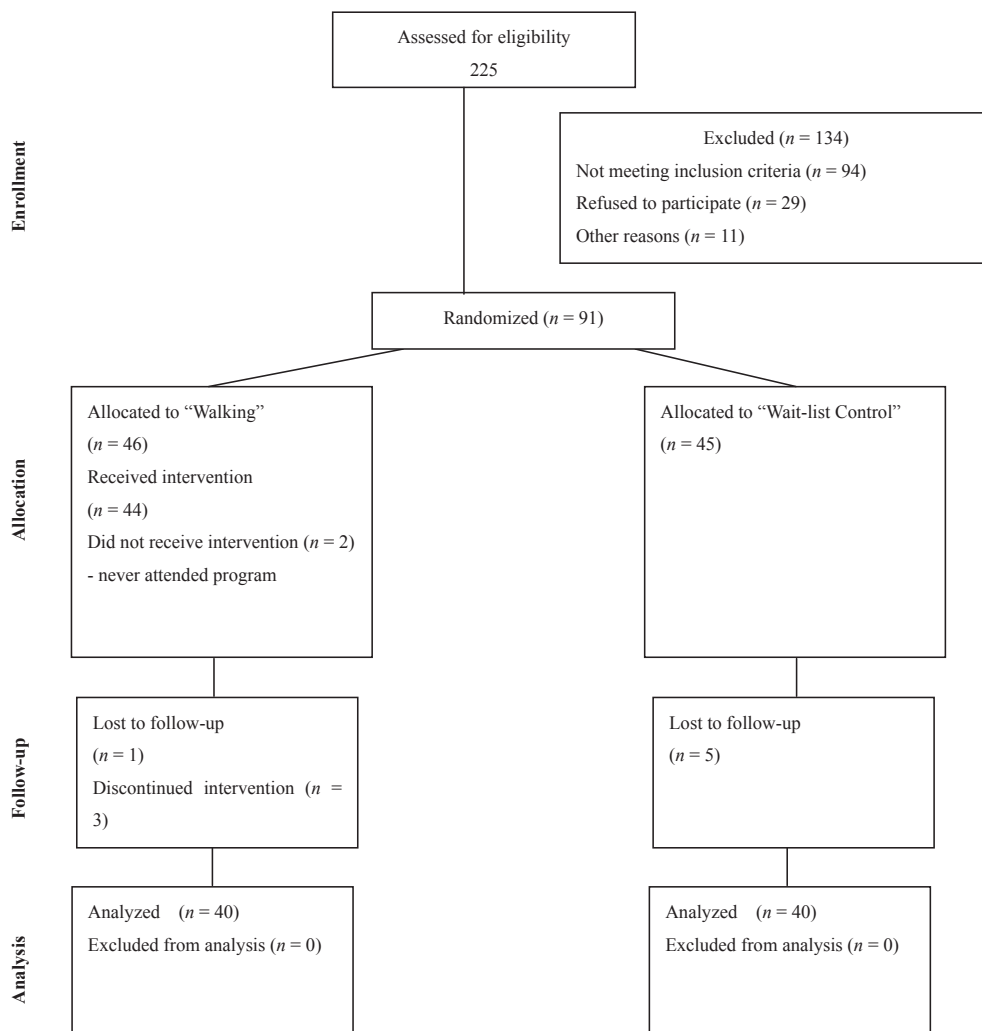


Fig. 1. Flow of participants through the intervention.

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