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REVIEW OF LITERATURE AND RESEARCH METHODOLOGIES

Exercise mode heterogeneity among reported studies of the qigong practice Baduanjin



Kevin Antonishen, M.Kin, B.Sc (Hons), C.E.P.*

Department of Kinesiology and Physical Education, Faculty of Health Sciences, University of the Fraser Valley, 45190 Caen Avenue, Chilliwack, BC V2R 0N3, Canada

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Summary There has not been a uniform method for the practice of Baduanjin, and most published research reports involving this set of traditional Chinese exercise have provided incomplete descriptions of the movements used for those studies. This paper reviews elements of past research methodologies of Baduanjin intervention studies and provides considerations for future research. Ambiguities and inconsistencies in the descriptions of the movements, along with some implications which arise from this are discussed.

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Introduction

Within Chinese culture, maintaining and enhancing health through exercise methods known as qigong has been popular for thousands of years (Enz, 2011; Lin et al., 2000). As with yoga, this Asian self-health-care practice combining regulation of the breath, mind, and body has become popular world-wide in recent decades (Chen, 2011). There has also been a burgeoning increase of research publications investigating the health benefits of various qigong routines. One of the more common forms of qigong is Baduanjin (also written as Ba Duan Jin, or Eight Brocades,

or Eight-Section Brocade), which is a relatively simple set of exercises that can be completed in 20 min or less (An et al., 2008). Within China, this particular form of qigong is now commonly studied, being subject to reviews, standardization, and clinical verification. Conclusions from these studies suggest Baduanjin may be a valuable method for health promotion in the general population as well as for those with specific health challenges (Ng and Tsang, 2009b). However, a central problem emerges when reviewing this body of literature, in that the exercise method is rarely described adequately enough to render the studies replicable, nor to interpret the validity of the findings and translate the interventions into practice. This shortcoming may keep Baduanjin out of the clinician's toolbox, especially for those who rely on evidence based practices.

* Tel.: +1 604 792 0025x2216.

E-mail address: Kevin.Antonishen@ufv.ca.

Historical use of Baduanjin is given some consideration in articles by Tsang et al. (2003), An et al. (2008), and Hsu et al. (2008). A more thorough background is discussed by Yang and Silver (2003). While there appears to be debate among scholars as to the origin of Baduanjin, evidence suggests it has been practiced for nearly sixteen centuries throughout many of the different regions of China and has been adapted for specific purposes (health-preserving, medical, and martial), including sitting and standing forms (Tsang et al., 2003; Yang and Silver, 2003). Consequently one cannot presume there is a ubiquitous method of performing Baduanjin, and this cannot be overlooked; different movement patterns can yield different training effects. Considering that many different forms of the routine have emerged and still persist, the Chinese Health Qigong Association (CHQA) published performance standards for Baduanjin, claiming to have used scientific rationale for the updated version (Chinese Health Qigong Association, 2008). This would make it appealing for investigations of clinical intervention, and indeed it has been referred to in recent studies (An et al., 2008; Ng and Tsang, 2009b; Ng et al., 2011), and the prospective methodology described by Zheng et al. (2013).

The aim of this paper is to reveal disparity and lack of clarity in the body of research investigating Baduanjin and provide some considerations for future studies.

Absence of performance instructions – too little information

A literature review of articles limited to English language publications utilizing EBSCOHost databases (including Academic Search Premier, Biomedical Reference Collection: Comprehensive Edition, CINAHL, Health Source, Medline, Psych Info, Sport Discus), ScienceDirect, and Highwire Press involving search terms Baduanjin, Ba Duan Jin, and Eight Brocades reveals disparity and lack of clarity in journal publications regarding the research protocols for performing Baduanjin.

In their reporting of a prospective study protocol for a randomized controlled trial, Zheng et al. (2013) have referred to using Health Qigong – Baduanjin, published by the General Administration of Sport of China for their planned intervention. There are no details directly provided of how the exercise is to be performed, except for ten photographic images. Hence, information about how the exercise is performed must be sought via the reference, which may have limited accessibility.

Among the eleven intervention studies found through this search, only one provided a written description of the motions used in their protocol (Chen, 2006), although the account is too vague for the methodology to be replicable. Four articles used photographic images (differing among the sources) for their description, each providing one image per exercise routine (An et al., 2008; Chen et al., 2012; Ng and Tsang, 2009a; Ng et al., 2011), with one lacking a reference entry for the exercise mode (Chen et al., 2012). Two studies provided only a reference regarding how the movements were performed, without including pictures or written instructions (Manzaneque et al., 2009; Tsang et al., 2006). Notably, four did not describe the motions used in

their protocol, nor cite a reference (Chrisman et al., 2009; Fang et al., 2008; Hsu et al., 2008; Tsang et al., 2003) and one of these (Tsang et al., 2003) is used as a reference for the intervention methods in four of the other noted articles (Manzaneque et al., 2009; Ng and Tsang, 2009a; Ng et al., 2011; Tsang et al., 2006). In brief, the independent variable attributes of exercise mode, as well as intensity, are characteristically absent or unclear. Details of position, movement trajectory, breathing, and posture are seldom addressed. What can be inferred from the information in these articles suggests that among them have been exercise protocols involving adaptations to meet the abilities of the subjects used, and variations disparate from each other and from the routine recommended as standard by CHQA.

Whereas Baduanjin and other qigong practices may be very efficacious and cost-effective health promoting methods, as studies have been suggesting, adoption by health care and health promotion professionals in science-centric societies will likely depend on the strength of evidence issuing from the synthesis of applicable research. Mei et al. (2012) issued a systematic review of Baduanjin with regard to its modulation of blood lipid metabolism. They noted all included studies were assessed to be of poor methodological quality. While their report does indicate the various studies reviewed had unequal intensity, duration and frequency of exercise, consideration for the mode of exercise was limited to noting the intervention was either Baduanjin alone, or combined with other treatments. This review refers to Koh (1982) when describing the exercise form of Baduanjin. However, Koh's description of Baduanjin portrays six of the eight sections as substantially dissimilar to the exercise described in the other articles which have depicted the actions. The routine described by Koh is scarcely comparative with the exercise mode indicated in these other studies. Other systematic reviews have concluded that trial reports lack adequate detail regarding the treatment, and collectively yield results of insufficient evidence or small effect sizes (Lee et al., 2009a; Ng and Tsang, 2009b), which possibly is due to the plurality of the exercise mode (Lee et al., 2009b).

The problem of heterogeneity in the performance of a particular set of exercises under investigation is not limited to Baduanjin. Wayne and Kaptchuk (2008b) describe similar challenges to research regarding tai chi. They noted that published reports characteristically lack details of interventions, including styles and forms practiced, and call for better description of protocols.

Reports from trials where exercise is used as a form of intervention ought to thoroughly describe the frequency, intensity, duration, length, and mode attributes of the independent variable (Helmhout et al., 2008). Exercise mode describes the type of activity (Fox et al., 1993); precise details of the intended activity, how it was actually administered, and any deviations from the protocol require specification (Altman et al., 2001). The procedures, or those referred to, must provide a clear and precise description of how the exercise was performed, written with enough information so that readers can judge if the results and conclusions are valid, and also so the experiment can be replicated to assess if the results are reproducible. Considering the mode, although exercise is sometimes regarded as a single class of treatment, such a

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