A considerable amount of research has reported on the effects of Taiji exercise on physical health, which also benefits psychological welfare. The present comprehensive review delves into the effectiveness of Taiji on mental well-being from 21 projects (n=13 in English, n=8 in Chinese) conducted in North America, Europe, Asia, and the Middle East. Results indicate marked outcomes of this body-mind exercise, as associated with mental wellness across various age groups, including general mental health and particular mental illnesses. They therefore reveal practical, theoretical and methodological implications, which also hint at future research directions. In conclusion, Taiji is likely applicable to mental health promotion in the sense of both curative and preventive purposes, although further exploration is proposed. 

Introduction

Mental health problems have unceasingly threatened national resources in the sense of an increase in disability and financial burden (World Health Organisation, 2014). Thus, this challenge has become a high priority in the worldwide health agenda (World Health Organisation, 2011), particularly when suffering from a severe shortage of trained mental health care professionals (World Health Organisation, 2012). Patients with mental disorders often attempt to tackle their illnesses through alternative therapies (Ennis, Lau, 2004; Unutzer et al., 2000), for which scholars have been investigating the evidence confirming such complementary methods (Fritze, 2006; Mamtani & Cimino, 2002), including Qigong (Johansson, Hassmen, & Journals, 2011), Baduanjin (Cheng & Wang, 2007), and Tai Chi qigong (Rogers, Larkey, & Keller, 2009), which originated from Taoism (Gallagher, 2003; Robinson, 2014) and is connected with the dynamics of yin and yang (Chen & Wang, 2007; Zhang, 1999), from which it creates an internal energy qi (Peng, 2012) that is conducive to body and mind (Zheng et al., 2014), and which pertains to physical (Chan, Lee, Suen, & Tam, 2011; Chen et al., 2008; Chuy et al., 2010; Lan, Chen, Lai, & Wong, 2013; Morris, 1999; Mustian, Katula, & Zhao, 2006; Sang, 2005; Wang et al., 2013; Wang et al., 2010), psychological (Abbott & Lavretsky, 2013; Caldwell, Harrison, Adams, & Triplett, 2009; Gallagher, 2003; Sandlund & Norlander, 2000; Xu, Chao, Chung, Liu, & Kao, 2010; Zhang & Zhang, 2004) and psychosocial health (Chan, Lee, Suen, & Tam, 2010; Chan, Lee, Lee, Sit, & Chair, 2013; Wang, Collet, & Lau, 2004; Wayne & Kaptchuk, 2008). These outcomes have received support from scholarly reviews; for instance, Lee and Ernst (2012), and Wang et al. (2004).

Taiji (referring to Taiji exercise throughout this comprehensive literature review), also termed Tai Chi, Tai Chi Chuan, Tai Ji Quan or Taijiquan (Chen & Wang, 2007; Wang et al., 2013), is a form of qigong (Rogers, Larkey, & Keller, 2009), which originated from Taoism (Gallagher, 2003; Robinson, 2014) and is connected with the dynamics of yin and yang (Chen & Wang, 2007; Zhang, 1999), from which it creates an internal energy qi (Peng, 2012) that is conducive to body and mind (Zheng et al., 2014), and which pertains to physical (Chan, Lee, Suen, & Tam, 2011; Chen et al., 2008; Chuy et al., 2010; Lan, Chen, Lai, & Wong, 2013; Morris, 1999; Mustian, Katula, & Zhao, 2006; Sang, 2005; Wang et al., 2013; Wang et al., 2010), psychological (Abbott & Lavretsky, 2013; Caldwell, Harrison, Adams, & Triplett, 2009; Gallagher, 2003; Sandlund & Norlander, 2000; Xu, Chao, Chung, Liu, & Kao, 2010; Zhang & Zhang, 2004) and psychosocial health (Chan, Lee, Suen, & Tam, 2010; Chan, Lee, Lee, Sit, & Chair, 2013; Wang, Collet, & Lau, 2004; Wayne & Kaptchuk, 2008). These outcomes have received support from scholarly reviews; for instance, Lee and Ernst (2012), and Wang et al. (2004).

This traditional practice has been rapidly utilised in health promotion (Tse & Bailey, 1992) beyond Chinese practitioners since the 1980s (Jin, 1994), in places as widespread as Vietnam (Nguyen & Kruse, 2012), Korea (Choi, Moon, & Song, 2005) and Sweden (Yao, Giordani, & Alexander, 2008), covering college students (Zhang, 2012), the young working class (Li, 2013), and the middle-aged (Wang, 2005) for various treatments, including chronic pain due to arthritis (Adler, Good, Roberts, & Snyder, 2000; Chen, Yen, Fetzer, Lo, & Lam, 2008), rehabilitation for patients who were affected by a stroke (Taylor-Piliae & Coull, 2011), psychological capacities (Tousignant et al., 2014) and mental illnesses; for example, depression (Lin, 2011).

Taiji is also an exercise particularly proposed for seniors (Chodzko-Zajko et al., 2006) to improve their motor abilities (Hun, Chang, Lai, & Chien, 2013; Li, Fisher, Harmer, & Shirai, 2003), balance and pre-landing muscle response (Choi et al., 2005; Kutner, Barnhart, Wolf, McNeely, & Xu, 1997; Tsang, Hui-Chan, & Fu, 2012), as well as an effective muscle training for patients with dementia (Chien, Hung, & Lai, 2013). Therefore, it has been applied to the development of the psychological and physical well-being of the elderly (Macfarlane, Chou, & Cheng, 2005), and also to ameliorate sleep quality (Li et al., 2004; Li, Han, & Zhang, 2009).

Specific reviews substantiate the contributions of Taiji to mental well-being, including depression (Chen & Wang, 2007), Alzheimer’s disease and Parkinson’s disease (Klein, 2008; Lee, Lam, & Ernst, 2008; Venglar, 2005), dementia (Tadros et al., 2013), psychological benefits (Zhang, Layne, Lowder, & Liu, 2012), and psychosocial wellness (Wang et al., 2009). However, these works are restricted to English literature only, which is unlikely to represent a wider population spectrum. Although Jimenez, Melendez, and Albers (2012) extended their review to Spanish publications, and Wang et al. (2013) and Wang et al. (2010) to Chinese works, they reviewed studies which examined mainly both physiological and psychological effects, because of which their literature reviews may dilute the effectiveness of practising Taiji on mental health.

The current review looks into the effects of Taiji on mental health, including studies on psychosocial well-being and specific mental illnesses, from English and Chinese sources that primarily inspect mental wellness. While there are diverse modes of Taiji, such as a sitting form (Li, Hu, & Cui, 2012), meditation (Yalom, Bond, Bloch, Zimmerman, & Friedman, 1977), and standing exercises (Chang, 2013), this research focuses on movement-based Taiji, as it is the most common method. This review gives an overview of to what extent Taiji can benefit mental health, offering a choice for mental care scholars, practitioners, and patients.
Chinese Sources. The Taiwan Electronics Periodical Services (TEPS) was adopted for searching Taiwanese literature. Three hundred and thirty-nine works were supplied when “太極” (taiji) was the keyword. The China National Knowledge Infrastructure (CNKI) was used for retrieving literature published in mainland China. “太極” and “心理” (psycho*) were the keywords, resulting in 171 pieces listed. The Chinese articles totalled 510.

Selection Eligibility
Inclusion criteria. The inclusion criteria included: (1) peer-reviewed literature published before July 2014, including Online First publications, (2) literature on movement-based Taiji, (3) mental health related studies as the primary research objective, and (4) empirical inquiries.

Exclusion criteria. The exclusion criteria included: (1) dissertations, conference proceedings, case reports, letters, book reviews, literature reviews, editorials and commentaries; (2) studies combining physical effects; and (3) investigations of other interventions, for example, Baduanjin or Yoga.

Selection Process
The retrieved English and Chinese articles underwent a quick screening (refer to Figure 1), ruling out duplicated articles and those which were not full texts. Literature which fell into the exclusion criteria was abandoned, through examining the abstracts. The 117 remaining potential studies (n=76 in English, n=41 in Chinese) were then studied in detail under the inclusion criteria, following which 21 projects were finally selected (n=13 in English and n=8 in Chinese).

Results and Discussion
The 21 reviewed literature items (refer to Table 1) involved 1,804 participants, aged 15-97, conducted in Asia (mainland China=8, Hong Kong=2, Taiwan=2), North America (n=7), Europe (n=1) and the Middle East (n=1). The studies included a variety of themes, such as mental health (n=8), depression and anxiety (n=5) and fear of falling (n=2), using the Yang style (n=11) for 30-45 minutes (n=9) in 3-month interventions (n=6).

The current review analyses the research themes and designs, as listed in Table 2, subsequently discussing their effectiveness.

![Procedural Chart of Selecting Publications for This Review](chart)

Table 1. Characteristics of the Reviewed Literature

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language of publications</td>
<td>English (n=13) Chinese (n=8)</td>
</tr>
<tr>
<td>Publication year</td>
<td>2014 (n=3) 2012 (n=3) 2011 (n=3) 2010 (n=1) 2009 (n=1) 2008 (n=2) 2006 (n=1) 2005 (n=1) 2004 (n=2) 2003 (n=1) 2001 (n=3)</td>
</tr>
<tr>
<td>Research location</td>
<td>Mainland China (n=8) USA (n=7) Hong Kong (n=2) Taiwan (n=2) Switzerland (n=1) Iran (n=1)</td>
</tr>
<tr>
<td>Research theme</td>
<td>Mental health (n=8) Depression (n=3) Anxiety (n=2) Fear of falling (n=2) ADHD (n=2) Life satisfaction (n=1) Quality of life (n=1) Self efficacy (n=1) Stress (n=1)</td>
</tr>
<tr>
<td>Form / style</td>
<td>24-form Yang style (n=5) Tai Chi ball (n=3) Yang style (unspecified form) (n=3) Not specified form and style (n=4) 18-form Yang style (n=2) 10-form Yang style (n=1) 18-form Chen style (n=1) 6-form (unspecified style) (n=1) Pushing Hand Tai Chi (n=1)</td>
</tr>
<tr>
<td>Duration per session</td>
<td>30-min (n=1) 45-min (n=2) 40-min (n=2) 35-min (n=2) 30-min (n=3) 25-min (n=2) 20-min (n=1) 10-50 min (n=1) Unspecified (n=7)</td>
</tr>
<tr>
<td>Intervention duration</td>
<td>48-week (n=1) 36-week (n=1) 32-week (n=1) 26-week (n=1) 24-week (n=2) 15-week (n=1) 12-week (n=6) 8-week (n=2) 4-week (n=1) Unspecified (n=4)</td>
</tr>
</tbody>
</table>

Research Themes
Mental health. Mental health positively correlates with quality of life, which also applies to patients who need less hemodialysis treatment when they practise Taiji (Shahgholian et al., 2014). Eight studies out of the 21 reviewed literature items cover a broader range of psychological effects: most of them focused on how the elderly can develop mental health by practising Taiji. Comparing the 66 seniors in a Taiji training group invited from two nursing homes to the 73 in the control group from another four nursing homes, a non-equivalent pretest-posttest project design (Lee et al., 2010) indicated better mental performance on the part of the Taiji group than for that of the control group, including psychological and social health, from which Taiji practitioners reported lower depressive symptoms and psychological distress (Li, Duncan, et al., 2001). Other research on evaluating the mental health of the elderly supported these findings, presenting a decrease in anger, depression and anxiety, and an increase in friendliness (Han, 2008; Li et al., 2009; Taylor-Pilliae et al., 2006; Wang, 2011).
Table 2. Analysis of the 21 Reviewed Studies

<table>
<thead>
<tr>
<th>Source</th>
<th>Research theme</th>
<th>Sampling</th>
<th>Form / Style</th>
<th>Tai Chi training</th>
<th>Data collection</th>
<th>Psychological measurement</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Converse, Ahlers, Travers, &amp; Davidson, 2014</td>
<td>Attention ability</td>
<td>72 college students with Attention Deficit Hyperactivity Disorder symptoms, aged 18-34 (female=47, male=25)</td>
<td>24-form Yang style</td>
<td>50 minutes a session, twice a week, 15 weeks</td>
<td>A non-randomized, controlled, parallel design. 28 participants in experimental group (female=16, male=12) and 44 in control group (female=31, male=13).</td>
<td>One-Legged Stance Test (OLST), CANTAB® (Cambridge), CANTABrequipment(TM), Stop Signal Task (SST), Affective Go/No-Go test (AGS), Adult ADHD Self-Report Scale (ASRS), Godin Leisure Time Exercise Questionnaire, Weekly Leisure Activity Score</td>
<td>USA</td>
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<tr>
<td>Liu, 2011</td>
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<tr>
<td>Huang, al., 2012</td>
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<tr>
<td>Yeung et al., 2012</td>
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<tr>
<td>Wang et al., 2012</td>
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<tr>
<td>Shahgholian, Eshgheinzad, &amp; Mortazavi, 2014</td>
<td>Quality of life of renal patients</td>
<td>25 patients aged 20-70 (unspecified gender ratio)</td>
<td>Yang style (unspecified form)</td>
<td>40 minutes per week, 12 weeks; and twice at home</td>
<td>A quasi-experimental study with one single group. Pre- and post-testing.</td>
<td>Ferrans and Powers QOL Index Dialysis Version, Kidney Disease Quality of Life-Short Form (KDQOL-SF)</td>
<td>Iran</td>
</tr>
<tr>
<td>Nedeljkovic, Ausfeld-Haf ter, Streitberger, Seiler, &amp; Wirtz, 2012</td>
<td>Stress reduction</td>
<td>49 healthy people aged 18-50 (female=32, male=17)</td>
<td>18-form Yang style</td>
<td>35 minutes a day, twice a week, 3 months</td>
<td>A standardized and controlled experimental design. 26 participants in the Taiji group (female18, male=8) and 23 in the control group (female=14, male=9).</td>
<td>Trier Social Stress Test (TSST), ECG Physiological measures, Perceived Stress Scale (PSS), Allgemeine Depressionsskala-Kurzform (ADS-K) questionnaire, Multidimensional Mood Questionnaire (MDMQ)</td>
<td>Switzerland</td>
</tr>
<tr>
<td>Wang et al., 2012</td>
<td>Depression due to cerebral infarction</td>
<td>69 patients aged 36-68 (female=27, male=42)</td>
<td>24-form Yang style</td>
<td>Twice per week, 1 month (unspecified duration)</td>
<td>Randomly assigned 36 participants to Tai Chi group (female=16, male=20) and 33 to control group (regular rehabilitation programme) (female=11, male=22). Pre- and post-testing.</td>
<td>HAMD, GQOLI-74</td>
<td>China</td>
</tr>
<tr>
<td>Yeung et al., 2012</td>
<td>Depression</td>
<td>37 Chinese Americans affected by depressive disorders aged 18-70 (female=28, male=9)</td>
<td>Yang style (unspecified form)</td>
<td>60 minutes per day, twice a week, 12 weeks (unspecified duration of Tai Chi practice)</td>
<td>A randomised controlled trial. 26 participants to the intervention group (female=20, male=6) and 11 to the control group (female=8, male=3). Measured in the 6th and 12th weeks.</td>
<td>Hamilton Rating Scale for Depression, Clinical Global Impressions Severity (CGI-S) and Improvement (CGI-I), Quality-of-Life Enjoyment and Satisfaction Questionnaire, Short-Form (Q-LES-Q-SF), Multidimensional Scale of Perceived Social Support (MSPSS)</td>
<td>USA</td>
</tr>
<tr>
<td>Huang, Yang, &amp; Liu, 2011</td>
<td>Fear in falling of the elderly</td>
<td>176 Taiwanese community-dwelling adults aged 60 or over (female=103, male=73)</td>
<td>10-form Yang style</td>
<td>45 minutes per session, 3 times per week, 8 weeks</td>
<td>A randomised selection chosen from 660 residents and randomly assigned to 3 groups. Cognitive behavioural therapy (n=60; female=32, male=28); cognitive-behavioural therapy with Tai Chi (n=56; female=37, male=19) and a control group (n=60; female=34, male=26).</td>
<td>Fall Efficacy Scale (FES) (Chinese version), GFFM scores, Activities-Specific Balance Confidence Scale, WHOQOLBREF</td>
<td>Taiwan</td>
</tr>
<tr>
<td>Wang, 2011</td>
<td>Mental health of the elderly</td>
<td>70 retired teaching staff in a university aged 15-78 (female=58, male=12)</td>
<td>Tai Chi ball</td>
<td>3 months (unspecified duration of practice and frequency)</td>
<td>Pre- and post-testing.</td>
<td>SCL-90 (Chinese version)</td>
<td>China</td>
</tr>
<tr>
<td>Authors</td>
<td>Study Title</td>
<td>Participants</td>
<td>Intervention</td>
<td>Measured</td>
<td>Groups</td>
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<tr>
<td>Zhang, 2011</td>
<td>Mental health of college students</td>
<td>80 students from 2 universities (female=36, male=44)</td>
<td>Tai Chi ball</td>
<td>40 participants in experimental group (female=20, male=20) and control group (female=16, male=24)</td>
<td>Chinese versions of PSDQ and POMS</td>
<td></td>
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</tr>
<tr>
<td>Lee, Lee, &amp; Woo, 2010</td>
<td>Psychological health of the elderly</td>
<td>139 Chinese residents aged 65 or above from 6 nursing homes (female=94, male=45)</td>
<td>Unspecified</td>
<td>40 minutes each session, thrice a week, 26 weeks</td>
<td>Doubly multivariate analysis of covariance, State Self-Esteem Scale (SSES), SF-12 Health Survey – Standard version 1 (SF-12 Chinese version), Social Support Questionnaire – Short Form (SSQ6) (Chinese version), Satisfaction with the Nursing Home Instrument (SNHI) (Chinese version)</td>
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<tr>
<td>Li, Zhang, &amp; Duan, 2009</td>
<td>Long-term effects on mental health of the elderly</td>
<td>156 seniors aged 60 or above (female=99, male=57) (practitioners =79, non-practitioners=77)</td>
<td>Depending on the practitioners</td>
<td>A public survey conducted in a park from June 15, 2009 to July 5, 2009, Consisted of a Tai Chi group, in which participants (n=79; female=51, male=28) who have practised Taiji 30 minutes per day, thrice per week, for more than 6 months; while the participants in the control group did not do any exercise (n=77; female=48, male=29),</td>
<td>Chinese version of Profile of Mood States-short form (POMS-SF)</td>
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<tr>
<td>Han, 2008</td>
<td>Mental health and sleep quality of the elderly</td>
<td>64 elderly individuals aged 55 or above (unspecified gender ratio)</td>
<td>Tai Chi ball</td>
<td>32 participants in Tai Chi ball group and 32 in aerobic exercise group (unspecified gender ratio).</td>
<td>PSQI, SCL-90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yang &amp; Shen, 2008</td>
<td>Anxiety of middle-aged and the elderly</td>
<td>115 adults aged 50-70 (female=64, male=51)</td>
<td>Tai Chi pushing hands</td>
<td>3 months (no details). Pre- and post-testing.</td>
<td>Self-Rating Anxiety Scale, (SAS) (Chinese version)</td>
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</tr>
<tr>
<td>Taylor-Pilli, 2006</td>
<td>Psychosocial effects on patients with cardiovascular disease risk factors</td>
<td>38 Chinese aged 66 on average (no details) (female=26, male=12)</td>
<td>24-form Yang style</td>
<td>A quasi-experimental study Measured at the 6th and 12th weeks.</td>
<td>Chinese versions of Cohen’s Perceived Stress Scale, Profile of Mood States, Multidimensional Scale of Perceived Social Support (USA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sattin, 2005</td>
<td>Fear in falling of the elderly</td>
<td>217 elderly people aged 70 to 97 from 20 congregate living facilities (female=205, male=12)</td>
<td>6-form (unspecified style)</td>
<td>A cluster-randomized, controlled trial. 108 in Tai Chi group (female=103, male=5) and 109 in Wellness Education group (female=102, male=7), Measured ABC and FES every four months for a year.</td>
<td>Mini-Mental State Examination (MMSE), Activities-Specific Balance Confidence Scale (ABC), Fall Efficacy Scale, Centers for Epidemiologic Studies, Depression Scale (USA)</td>
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<tr>
<td>Chang, Hsu, 2004</td>
<td>Leisure satisfaction and life satisfactio n</td>
<td>166 Tai Chi practitioners aged 40 and above. (female=85, male=81)</td>
<td>Unspecified</td>
<td>A public survey</td>
<td>TCCLSS TCCLS</td>
<td></td>
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</tr>
<tr>
<td>Chou et al., 2004</td>
<td>Depression of the elderly</td>
<td>14 Chinese community-dwelling patients aged 60 and above (unspecified gender ratio)</td>
<td>18-form Yang style</td>
<td>7 elderly individuals in the intervention group and 7 in the control group (unspecified gender ratio)</td>
<td>Chinese version of the Center for Epidemiologic Studies Depression Scale (CES-D), Mini-Mental State Examination (Hong Kong)</td>
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</tbody>
</table>
The regular practice of Taiji can minimise the risks of falling (Li et al., 2005; Low, Ang, Goh, & Chew, 2008; Thornton, Sykes, & Tang, 2004; Zeeuwe et al., 2006), which is particularly advantageous to elders, and thus reduces their fear of falling and its accompanying psychological burden. Three groups of community-dwelling Taiwanese seniors were randomly selected and assigned (Huang et al., 2011), and were offered cognitive-behaviour therapy (n=60), cognitive-behaviour therapy with Taiji training (n=56), and a control group (n=60). Those who participated in the Taiji intervention significantly lowered their fear of falling, resulting in better quality of life. Results were verified by a similar study with 217 elders in the USA (Sattin et al., 2005). With better balance control (Chen, Fu, Chan, & Tsang, 2012; Tsang & Hui-Chan, 2004; Yu & Yang, 2012), the elderly strengthened their self efficacy and self esteem (Li, McAuley, et al., 2001), which enabled them to gain greater leisure satisfaction and life satisfaction (Chang et al., 2004).

In addition, Taiji is also beneficial to the mental health of the youth. Significant signs of abatement of fear, depression and anxiety, and of a better interpersonal relationships were reported in a Taiji intervention group consisting of college students (n=51 out of 102) (Yang, 2003). Similar results were shown in the experimental group training for Taiji ball (n=40 out of 80), from another research conducted with undergraduates (Zhang, 2011).

Specific mental illnesses. Supported by research on the effects of Taiji on mental health, as articulated previously, studies on its effectiveness on specific mental illnesses further elaborate upon the gains to be had from practising Taiji. One randomised controlled trial enumerated more evidence of improvement in depressive symptoms among its participants (n=26) in a Taiji intervention group than that in its control group (n=11) after a 12-week programme in the USA (Yeung et al., 2012); for which another study in China, with 69 participants, echoed these outcomes (Wang et al., 2012). Moreover, another randomised controlled trial compared participants (n=26) in an experimental group to a control group (n=3), illuminating a reduction in stress reactivity related to cortisol and heart rates, which indicates a lower increase in perceived stress and a higher level of calmness (Nedeljkovic et al., 2012). In these studies, diverse Taiji interventions have been devised for elderly individuals who suffer from depression and anxiety, including conventional Taiji (Chou et al., 2004; Song et al., 2014) and Pushing Hand Taiji (Yang & Shen, 2008).

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Year</th>
<th>Sample Description</th>
<th>Sample Size</th>
<th>Intervention Duration</th>
<th>Control Group</th>
<th>Outcome Measures</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Li et al., 2003</td>
<td>ADHD school children</td>
<td>13 adolescents in a remedial school (female=2, male=11)</td>
<td>Unspecified</td>
<td>25 minutes per session, twice a week, 5 weeks</td>
<td>Measured prior to intervention, and at the 5th week, and 2 weeks after the intervention (without training)</td>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Li, Duncan et al., 2001</td>
<td>98 elderly people aged 65 and above (female=75, male=23)</td>
<td>Yang style</td>
<td>30 minutes a session, twice a week, 24 weeks</td>
<td>A randomised controlled trial, 53 participants in the experimental group, and 45 in the control group. Measured at the 1st, 3rd and 6th months.</td>
<td>USA</td>
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<td></td>
</tr>
<tr>
<td>Li, M. McAuley et al., 2001</td>
<td>Perceived self efficacy of the elderly</td>
<td>72 elderly individuals aged 65-96 (unspecified gender ratio)</td>
<td>24-form Yang style</td>
<td>30 minutes per session, twice a week, 6 months</td>
<td>A randomised controlled trial, 40 participants in the intervention group, and 32 in the control group (unspecified gender ratio). Measured prior training, the 12th and 24th weeks.</td>
<td>USA</td>
<td></td>
</tr>
</tbody>
</table>

One recent project examined the effects of Taiji on adolescents affected by attention deficit hyperactivity disorder (Converse et al., 2014). After a 15-week Taiji intervention, the participants (n=28) in the experimental group reported a greater decrease in inattentive indicators, although there were no significant changes in hyperactivity and impulsivity. Encouragingly, 11 adolescents from a remedial school improved, showing less anxiety, daydreaming, hyperactivity and inappropriate emotion, after a 5-week Taiji training programme (Hernandez-Reif et al., 2001), the effects of which continued into the follow-up period without such practice two weeks after the programme.

**Taiji Forms and Style**

Simplified Taiji forms contain a variety of modes, including the 8-form, 24-form (Wang et al., 2013), 42-form (Yan, 2013) and so on, compared to the traditional 108-form (Koh, 1981; Taylor-Pillai et al., 2006), among which the 24-form (n=5) is used comparatively frequently in interventions. The 24-form likely consists of most of the major movements of limbs and body-trunk, which is suitable for different practitioner skill levels and age groups. Although Taiji styles include the Chen, Sun, Yang, Wu (Jian Quan) and Wu (He Qin) styles (Chen & Wang, 2007), half of the studies used the Yang style (n=11) in the reviewed projects. The Yang style is the basis for the Taiji programme compiled by the Physical Culture and Sports Commission of the People’s Republic of China (Xue, 1994), as it is the most prevalent and influential style (Qiao, 2013).

Apart from these common forms and styles, other Taiji modalities have also been employed, such as Pushing Hand Taiji, which is suggested for balance training (Wong, Ji, Hong, Fok, & Wang, 2013). However, both standing pushing hand and mobile pushing hand (Fu, 1994) are suitable for veterans who are familiar with Taiji. They can be used for particular research objectives; for instance, comparative studies on effectiveness between beginners and skilful practitioners.

Tai Chi ball, a combination of Taiji and badminton which is newly popular in mainland China, has been promoted enhancing physical functional ability (Guo, 2014; Lam, Cheung, & Chow, 2011a), psychological and psychosocial health (Lam, Cheung, & Chow, 2011b; Li, 2014; Wang, Chuai, & Wei, 2008). Nevertheless, studies and research projects on it are limited and there is room for investigations into its benefits to mental health.
Limitations

There exist only four randomised controlled trials done in the USA, involving 387 Americans and 37 Chinese Americans. Furthermore, some of the reviewed works were short of research design details, because of which their results are less convincing. Research utilising greater rigour is hence recommended, showing cogent results that reinforce applications of Taiji for development of mental well-being.

Depression and its associated symptom comprised the major research themes of the reviewed literature. Research topics should possibly extend to other mental illnesses as well, such as schizophrenia (Ho et al., 2012), in order to optimise the employability of practising Taiji in mental health promotion.

Implications

Taiji is a body-mind-spirit exercise (Chang & Wu, 2013; Raman, Zhang, Minnichiello, D’Ambrosio, & Wang, 2013; Wang et al., 2009), which makes it beneficial for practitioners developing psychosocial well-being through group practice. The outcomes of the present review present implications that can inspire researchers, practitioners and policy makers towards further exploration.

Practical implications

In accordance with the definition that “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organisation, 2012, p. 7), psychological wellness is a decisive determinant of individual health, and hence mental health promotion is an integral part of public health policy (World Health Organisation, 2004). It is absolutely vital that health policy makers consider more feasible resolutions, among which Taiji may shed light on the promotion of mental well-being in a safer and more economical fashion. For example, training qualified Taiji instructors on a community basis can help promote physical, mental and social health through a holistic perspective. Such community exercise not only provides preventive measures but also increases psychosocial benefits, with minimal cost to public health promotion.

Reports warn that worldwide more than 10% of children have experienced mental disorders; half of patients with various levels of mental illnesses first show symptoms by the age of 14, and three-quarters by 25 (World Health Organisation, 2014). The current review proposes to apply Taiji to cope with teenagers’ mental problems; for example, autism and Asperger’s syndrome. The feasibility includes assimilating Taiji into educational curricula in physical education, as well as extra-curriculum activities, in order to prevent mental problems among school children and to complement treatments for adolescents who suffer from mental illnesses. Therefore, modification of the training provided to physical education teachers is also necessary in order to fulfil this aim.

As an alternative therapy for curative and preventive purposes (Kuramoto, 2006), it is proposed that Taiji be incorporated into movement-based psychotherapy (Torre, 2008) and dance-driven exercise (Marks, 2005), which are also used for mental health related practices (Barton, 2011; Parteli, 1995). Taiji modes are sophisticated, including blending with instruments, practising Taiji sword (Qiu, 2000; Wang, Shen, & Luo, 2008), Taiji sabre (Qiao, 2013; Xue, 1994) or Taiji Ian (Jiang, 2010), thereby increasing appreciation for and the aesthetics of these sports. The gait of Pushing Hand Taiji stimulates rhythmic movements, animating the interaction between the practitioners and their partners from which both parties improve social skills. Moreover, practising Taiji with music (Qiu, 2000) may enrich the use of music therapy, which is also a prominent treatment for mental illnesses (Gardstrom, Bartkowski, Willenbrink, & Diestelkamp, 2013; Gold et al., 2013; Simavli et al., 2014; Solli, Rolvsjord, & Marit, 2013). These exercises offer more choices for versatile service providers and recipients.

Theoretical implications. Although innumerable studies signify the effectiveness of Taiji on physiological, psychological and social dimensions for patients with mental health problems, there is a dearth of research on the theoretical or philosophical rationale for this (Chen & Wang, 2007; Wang et al., 2004); for instance, how inward energy movements affect (Lan et al., 2013) mental disorders. Understanding such dynamics is critical for applying Taiji to long-term rehabilitation.

Skilful Taiji synthesises mindful concentration with body movement (Chen, Hsu, Chen, & Tseng, 2007) and cognisant relaxation (Abbott & Lavretsky, 2013), resulting in mental and physical well-being (Chen, Snyder, & Krichbaum, 2002). However, the scarcity of studies related to the mechanism of this synthesis results in gaps that remain for future research direction.

Methodological implications. In response to the need for a further understanding of how Taiji is effective for mental health, interdisciplinary research is thus recommended, in which experts in various fields collaborate intensively, including the fields of mental health, sports, martial arts, Chinese philosophy, psychology, Chinese medical care, neuroscience and physiology. This cooperation will extend the horizon of mental care from complementary and alternative medicine approaches alone.

The reviewed literature is prone to quantitative studies that exhibit scientific measurements of Taiji functionality on mental health, with a weak understanding of what the participants have experienced. Klein and Rivers (2006) and Yeh et al. (2010) attempted to adopt mixed methods in their research but they presented only a few excerpts, too feeble to testify to a deeper knowledge of the personal accounts. However, qualitative inquiries are proposed for researching this topic, which may underpin the theories of how Taiji can enrich mental health.

Conclusion

The present comprehensive review reveals the contributions of Taiji to mental well-being, including psychological and social health. This non-pharmacological approach characterises cost effectiveness, safety, self pace and self-healing, which is favourable across different age groups for mental care treatments and prophylactic purposes, as an intervention of complementary and alternative medicine in both individual and group settings. This study offers references for patients with mental problems, caregivers and policy makers who deal with mental health promotion.

Biography

Fung Kei Cheng, PhD, focuses on applying Chinese culture and Buddhism to various disciplines, including counselling and psychotherapy, mental health, complementary and alternative medicine, conflict resolution, peacemaking, gender studies, business management, and sustainable development. Her research outcomes have been published in international peer-reviewed journals in Chinese and English, and updated on https://hkut-hk.academia.edu/FungKeiOasisCheng, for example:


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