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Article

Enhancing Physical and Psychological Wellbeing of Patients with End-stage Renal Disease: A Pilot In-hospital Tai Chi Group Intervention in Hong Kong

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Abstract: This article presents a pilot group intervention to assist end-stage renal disease (ESRD) patients in developing a regular exercise lifestyle, enhance their wellbeing, and promote mutual support. Sixteen patients with ESRD aged between 45 and 65 participated in the five-week group intervention based on the Eastern Body-Mind-Spirit model with Tai Chi components at a public hospital in Hong Kong. A mix-method approach was used to assess the attainment of objectives: (1) participants were asked to report their frequency and duration of physical exercises outside of the group; (2) the Personal Wellbeing Index – Adult (Cantonese) 4th edition was used to measure the quality of life of the participants; (3) a general group evaluation form was used to evaluate participants' satisfaction with the group; and (4) observations by the medical social workers during the group and sharing sessions, feedback from the participants, the Tai Chi Instructor, and medical team members of the renal ward were collected to determine the level of mutual support among participants. The group showed promising results: (1) the average time group members spent exercising outside the group increased by 24%; (2) rapport was apparent among most group members; (3) communication between the patients and the medical team was enhanced; and (4) paired sample *t*-test showed a significant average difference between pre- and post-group Personal Wellbeing scores of the participants ($t = -2.9$, $df = 12$, $p = 0.01$). It is suggested to scale up the intervention and conduct follow-ups to determine the most suitable group duration and format.

Keywords: End-stage renal disease, Tai Chi, wellbeing, group work, hospital

1. Introduction

Chronic kidney disease (CKD) — a progressive, permanent, and irreversible loss of renal function — is a global public health problem, affecting 13.4% (11.7–15.1%) of people worldwide (Lv & Zhang, 2019). It is a severe illness in which damaged kidneys cannot filter blood as well as healthy kidneys. Without changes in lifestyle or medication, patients may eventually develop end-stage renal disease (ESRD) and need renal replacement therapy (RRT) for dialysis or a kidney transplant to sustain life. It is estimated that more than 5 million patients may require RRT by 2030 (Liyanage et al., 2015). In Hong Kong, 8,510 patients with severe CKD required RRT to sustain life in 2013, 2½ times as many as in 1996, when there were 3,312 patients (Tang, 2018). Most patients with ESRD receive dialysis at hospitals or dialysis centers.

Although dialysis can significantly prolong patients' lives, it can only partially perform the detoxification function of kidneys and demand a substantial time commitment from the patients. Also, patients may still suffer from a variety of physical symptoms, such as fatigue due to anemia, inability to concentrate, dizziness, and itchy skin (Jha et al., 2013). As many patients go to hospitals only for dialysis or medical checks, seeing clinicians regularly in a hospital environment might further remind them of their chronic illness and reinforce their sense of inadequacy.

Given the above and with the support from the renal medical team, a pilot Body-Mind-Spirit Tai Chi group was implemented for patients undergoing dialysis at a public hospital in Hong Kong to improve their physical and psychological wellbeing. The Eastern Body-Mind-Spirit Model was developed by Chan, Ho, and Chow (2001). It suggests that healthy physical conditions help patients develop stable and happy emotions. At the same time, stable and high self-esteem would enhance their motivation to have good self-care.

Meanwhile, studies have demonstrated the effectiveness of Tai Chi, an internal Chinese martial art that does not require exercising equipment, on patients' physical and psychological functioning. Since practicing Tai Chi requires whole-body coordination (Jancewicz, 2001), it helps improve balance, increase muscle strength, lower blood pressure, and reduce falls (Lee, 2017; Tsai et al., 2003; Wolf et al., 1996; Wolf et al., 1997). Moreover, Tai Chi practices are associated with improved mood,

reduced stress and anxiety, and improved sense of wellbeing of patients (Kutner et al., 1997; Shahgholian et al., 2014). The many positive effects of Tai Chi on patients may be maximized if the activity is practiced in a group of individuals facing similar health and life problems. Using the dynamics of the group format creates a social force of cohesiveness such that group members are interested in relating to and providing mutual support for each other (Funakoshi et al., 1985).

2. Materials and Methods

2.1 Recruitment of Participants

Ethical clearance was obtained from the hospital where the pilot group was conducted, and the author worked as a medical social worker. Posters were prepared to notify hospital staff, patients undergoing dialysis, and family members about the group. Also, a preparation meeting with renal ward clinicians and nurses was conducted to promote the group to patients undergoing dialysis at the hospital. After initial screening by nurses and interviews with medical social workers, 17 out of 23 patients, including 7 females and 10 males aged between 45 and 65, who expressed their interest in joining the group, were recruited. However, one female participant never showed up, making the eventual number of participants 16. Most of these patients did not know each other and had never had any experience with Tai Chi. Due to privacy issues, the medical team could not disclose the patients' medical histories such as their ages of developing the disease and the numbers of years they had been receiving treatment.

2.2 Intervention Design

Instead of a simple exercise program, the group comprised psychosocial group elements to create a platform for patients with ESRD to work on common problems, set goals, reflect, and acquire information within a group atmosphere. Precisely, the group was planned to (1) assist patients with ESRD in developing a healthy lifestyle with regular exercise, (2) enhance personal wellbeing, and (3) promote mutual support among participants. A group session was implemented weekly for five consecutive weeks (Table 1). Each session consisted of a 45-minute lesson of Tai Chi practice (body) and 30-minute activities and sharing, focusing on developing positive thinking and emotions (mind) and exploring life meanings (spirit). The Tai Chi lessons were delivered in an activity room of the hospital by a professional Tai Chi instructor. To ensure the participants' safety, several medical team members were present to practice Tai Chi with the participants and provide first aid in case of accidents. Handouts and video clips were also provided for participants to facilitate their practice at home. Three medical social workers led the activities and sharing. Each worked with five to six randomly assigned participants to ensure meaningful exchange.

Mini-games were often implemented to encourage discussion. For instance, "Happy Cards" — a poker guessing game that required participants to guess the color or the number of the cards — was played in Session 3. If a participant made a wrong guess, s/he had to share (1) the feeling when s/he first knew s/he had ESRD, (2) any changes in feelings, and (3) how to obtain those changes. The sharing was followed by a group discussion led by the medical social workers. The activity and sharing time, which consisted of a joint prize presentation and video shows, was extended to 45 min in Session 5, making the last group session a total of one and a half hours long.

2.3 Assessment

A mix-method approach was used to assess the attainment of objectives.

First, participants were asked to report their frequency (number of times per week) and duration (number of minutes per week) of physical exercises outside the group in the first and last group sessions.

Second, the Personal Wellbeing Index – Adult (PWI-A) (Cantonese) 4th edition (International Wellbeing Group, 2006) was used to measure the quality of life of the participants at the beginning and the end of the intervention. The PWI-A scale contains seven items of satisfaction, each one corresponding to a specific life domain: standard of living, health, achieving in life, personal relationships, safety, community connectedness, and future security. The items are rated on a 0-10 Likert response scale, with "0" meaning "completely dissatisfied" and "10" meaning "completely satisfied." The scores are standardized into units of 0 to 100 points by shifting the decimal point one step to the right, such as a value of 6.0 becomes 60 points. The seven domain scores can be summed to yield an average score representing Personal Wellbeing. A prior study with a sample of 180 Hong Kong participants showed that the mean Personal Wellbeing score was 65.19, with a standard deviation of 16.9 (Lau et al., 2005). The scale has achieved a convergent validity of 0.78 (Thomas, 2008) and demonstrated good test-retest reliability across 1−2 week intervals with an intra-class correlation coefficient of 0.84 (Lau & Cummins, 2005).

Table 1. Program of the pilot Body-Mind-Spirit Tai Chi group.

Session	Objectives	Activities implemented
Session 1	• To introduce the goals and objectives of our group to group members • To illustrate the interrelationship among Body-Mind-Spirit • To provide a chance for members to get to know each other • To promote regular exercise among members ***(Body)***	• Welcoming and introduction • Group members' self-introduction • Ice-breaking game • Pre-group data collection • Tai Chi practice
Session 2	• To promote regular exercise among members ***(Body)*** • To enable members to develop positive thinking and attitudes toward their illness and rehabilitation ***(Mind)*** • To encourage mutual support among group members	• Tai Chi practice • Twofold illustrations & sharing – how does emotion affect one's health? • Summarization and Debriefing
Session 3	• To promote regular exercises among group members ***(Body)*** • To enhance members' managing skills of their own emotions ***(Mind)*** • To encourage mutual support among group members	• Tai Chi practice • Game: Happy Cards & sharing – management changes, stress, and other emotions
Session 4	• To promote regular exercises among group members ***(Body)*** • To help members to explore their meaning of life ***(Spirit)*** • To encourage mutual support among group members	• Tai Chi practice • Game: The Creator & Sharing – meaning of life, hopes, and futures • Summarization and Debriefing
Session 5	• To promote regular exercises among group members ***(Body)*** • To recognize and appreciate the effort paid by individual group members • To evaluate and summarize the whole group program	• Tai Chi practice • [All 3 groups joined together] • Reviewed the contents and brought back pleasant memories with members through video and photographs • Sharing – self-development and new insight toward self • Prize presentation • Summarization

- Post-group data collection

Third, a general group evaluation form containing five multiple-choice questions was used to evaluate participants' satisfaction with the group. Sample questions include "Do you think the health care and exercise tips provided by the Tai Chi instructor are useful?" and "Are you interested in continuing practicing Tai Chi after the five group sessions?". Participants were also encouraged to provide additional comments.

Fourth, observations by the medical social workers during the group and sharing sessions, feedback from the participants, the Tai Chi Instructor, and medical team members of the renal ward were collected to determine the level of mutual support among participants. The content was also analyzed qualitatively using a general inductive approach to supplement the analyses of the above quantitative data (Saldana, 2013).

3. Results and Discussion

The group showed the merits of the sessions in the following ways. First, after learning Tai Chi in the group, the average time that group members exercised outside the group increased by 24%, from an average of 87.7 to 108.7 min. Around 1/3 of the group members expressed that they felt more refreshed and healthier after learning Tai Chi. Almost 70% of the group members found that the health care and exercise tips which the Tai Chi instructor provided were useful. Most (75%) of the group members showed interest in practicing Tai Chi after the five group sessions. The easiness and convenience of Tai Chi seemed to enhance participants' sense of accomplishment and thereby may improve the sustainability of the practice.

Second, rapport was apparent among most group members. From Session 3 onwards, it was observed that many participants stayed after the group sessions, chatted, and even took selfies among themselves. The topics they discussed after the group sessions, as observed by the medical social workers, were significantly related to the main foci of the session, namely physical health and emotions. Over 80% of the participants believed they were understood and supported by other participants, the medical social workers, and the medical team. Participants even organized small groups and practiced Tai Chi together after the sessions. As planned, the group environment allowed the participants who shared similar conditions and experiences to encourage and support each other. This, in turn, boosted the general morale of the group.

Third, the medical team members' role was initially only supplementary to ensure the participants' safety during Tai Chi practice. As a result of the group, participants and the medical team communicated more effectively as they came to know each other on a more personal level rather than the traditional level of patient-clinician interaction. This was an unexpected but much-welcomed result.

Although paired sample *t*-test showed a significant difference between the pre- and post-group Personal Wellbeing scores of the participants ($t = -2.9$, $df = 12$, $p = 0.01$), the difference was relatively small (pre-group $M = 67.4$, $SD = 9.9$, $n = 16$ vs. post-group $M = 69.3$, $SD = 9.6$, $n = 13$). This could be due to several reasons. Previous experiences of implementing regular exercise programs —Tai Chi programs (Mustata et al., 2005; Shahgholian et al., 2014) or other forms of low- to moderate-intensity exercises (King et al., 1997) — with patients with different conditions typically took 12 to 16 weeks to show their benefits on self-perceived wellbeing or quality of life. The group only conducted five sessions, which might not be enough for more substantial changes. While the group was enhanced with psychosocial components such as activities and sharing, relatively few numbers of sessions and little time allocated for group discussion and collaboration might hinder group development. Moreover, the recent experiences of the participants outside the group such as medical conditions, family relations, and work environment, might also affect their perceptions of their wellbeing. However, their effects could not be determined based on the assessment methods mentioned above.

4. Implications and Conclusion

Nonetheless, as a pilot, the present group showed its potential. Further follow-ups and research are needed to determine the most suitable duration and format. From our observation, the intensity and length of the body component (i.e., 45-minute Tai Chi practice) were appropriate for the clientele. However, the mind and spirit elements could be strengthened if more time (at least 30 minutes) was allowed. Also, participants seemed satisfied with the games and activities, especially those involved with familiar objects (e.g., poker cards). If a similar group is implemented, more games and interactive elements may be considered. We suggest expanding the group to over two months with more sessions, interactions, and in-depth discussions. We recommend that social workers in healthcare settings consider implementing similar groups with patients with other health conditions to enhance their

rehabilitation, confidence, and wellbeing. Nevertheless, in any case, the participation of medical would be beneficial and should be involved in the planning and delivery of the group.

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Conflicts of Interest: The author declares that she has no competing interests.

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