Bibliotherapy for improving caregiving appraisal of informal caregivers of people with dementia: A pilot randomized controlled trial

Abstract

Caregiving appraisal is a key driver to caregiving outcomes; however, the caregiving appraisal of informal caregivers of people with dementia needs improvement. This study aimed to explore the feasibility and acceptability of the evidence-based bibliotherapy protocol, and preliminarily test the efficacy on improving caregiving appraisal. A two-arm pilot randomized controlled trial was adopted. Sixty informal caregivers were randomized to either the intervention group, receiving eight weekly professional-guided bibliotherapy sessions without withdrawing from usual care; or the usual care group. The professional-guided bibliotherapy sessions included finish self-reading one chapter and receive telephone coaching each week. Caregiving appraisal, coping, psychological wellbeing, positive aspects of caregiving, knowledge of dementia, and attitude toward dementia were assessed both at baseline and immediately after the intervention. Assessors were blinded to group allocation. Individual interviews among ten participants from the intervention group were conducted to explore caregivers' acceptance of the intervention. Descriptive statistics, Chi-square test, Mann Whitney U test, independent t-test, generalized estimating equation, and content analysis were used for data analysis. This study pioneered the use of bibliotherapy among informal caregivers of people with dementia. The participant recruitment rate was 69.8%. The attrition rate of the intervention group was 20%. Bibliotherapy had a significant time-by-group interaction effect on caregiving appraisal (*p*<.001), coping (*p*=.003), positive aspects of caregiving (*p*=.001), knowledge of dementia (*p*=.017), and attitude toward dementia (*p*<.001). However, the effect on psychological wellbeing was only significant on the personal growth subscale (*p*=.025). The acceptability was also confirmed. No adverse event was documented.

Keywords:

caregivers, caregiving appraisal, coping, bibliotherapy, dementia

1. Introduction

With the aging of the population worldwide, the number of people with dementia is growing at an alarming rate. In China, more than 95% of people with dementia are cared for by informal caregivers at home (Xiao et al., 2014). However, with the limited resources in community health systems, professional support for dementia is still far from enough to meet the needs of the family (Wang, Cheung, & Leung, 2019). Many negative caregiving outcomes have been identified, whereas some positive outcomes have also emerged, and the essential determinant is caregiving appraisal. Caregiving appraisal refers to "all cognitive and affective appraisals and re-appraisals of the potential stressor and the efficacy of one's coping efforts" (Lawton, Kleban, Moss, Rovine, & Glicksman, 1989). It represents one's attempt to introduce meaning to the caregiving role. There are five dimensions of caregiving appraisal, clustered into three forms: positive appraisal (caregiving satisfaction, caregiving mastery), neutral appraisal (caregiving ideology), and negative appraisal (caregiving impact, subjective caregiving burden). The different forms of appraisals could co-exist.

Previous research found that caregiving appraisal could influence informal caregivers' mood (Roseman & Smith, 2001), life satisfaction (Lee, Brennan, & Daly, 2001), and mental health (Wu, Lee, Su, & Pai, 2015). It could also influence the care-recipients' behavioral problems, such as agitation and irritability (Gonzalez & Bakas, 2013). Evidence also showed that informal caregivers's caregiving appraisal could influence the quality of life between the caregiver-care recipient dyads (La & Yun, 2017). Studies in China found that both positive and negative caregiving appraisals exist among informal caregivers of people with dementia, and both forms need improvement (Zhang & Zhao, 2011). However, there is a lack of interventional studies.

Globally, many interventions have been used among informal caregivers of people with dementia. A systematic review found that family support, occupational therapy, and cognitive-behavioral therapy have been commonly used. However, such interventions require intensive professional involvement (Vandepitte et al., 2016). The effect on improving caregiving appraisal was also not found. Effective interventions for informal caregivers of people with dementia are suggested to be provided at the individual level and easy to access (Vandepitte et al., 2016). Recognizing the limited accessibility of professional services and Chinese families' unwillingness to disclose a diagnosis of dementia caused by social stigma, individual self-help interventions are particularly suitable for dementia caregivers in China (Wang et al., 2019). An easy to use self-help intervention, bibliotherapy, fulfills the requirements and may be implemented in the Chinese population.

Bibliotherapy, also known as reading therapy, is derived from two Greek words *biblion* (book) and *therapeia* (healing). It is the process of learning from high-quality written materials for therapeutic benefits and has the advantages of low cost, low staffing demands, and greater privacy (Glasgow & Rosen, 1978). Self-help manuals and workbooks are commonly used. The mechanism of bibliotherapy is based on cognitive behavioral therapy and includes three progressive stages: identification, catharsis, and insight (McKenna, Hevey, & Martin, 2010; Shrodes, 1949). Through guided book reading, the caregivers identify their problems, compare themselves with examples in the manual, experience psychological catharsis, and have an emotional release. This process promotes them to generate insight into their situations and finally improves their feelings, attitude, and perceptions (Figure 1). Evidence showed that bibliotherapy could improve both the positive and negative caregiving experiences (Chien, Thompson, Lubman, & McCann, 2016). As a key challenge for self-help interventions is the high attrition rate, minimal telephone contact with an interventionist, such as telephone coaching, was also deemed vital (Newman, Erickson, Przeworski, & Dzus, 2003).

A systematic review found that bibliotherapy was effective in improving depression, self-efficacy, stress, and anxiety among informal caregivers of people with dementia ((Wang, Bressington, Leung, Davidson, & Cheung, 2020). However, no study measured the efficacy on improving caregiving appraisal. As caregiving appraisal was associated with depression and self-efficacy (Wang, Cheung, Leung, & Davidson, 2020), it was postulated that bibliotherapy might also improve caregiving appraisal. As caregiving appraisal was derived from Lazarus's (1986) and Lawton's (1991) theoretical models, a conceptual framework was developed based on the two models.

In Lazarus's theory, when confronted with stressors, different people have different appraisals, which further determines their coping strategies and health outcomes. People with positive appraisal would choose an active coping strategy, which entails positive health outcomes, vice versa. Coping, on the other hand, could also influence the appraisal and may lead to a re-appraisal. Lawton (1991) introduced Lazarus's theory into the dementia caregiving context and tested the model among informal caregivers of people with dementia. In Lawton's model, the primary stressor for dementia caregivers was elucidated as the behavioral problems of people with dementia. Apart from stressors, environmental (such as social support) and personal (such as caregiver physical health) factors also influenced caregiving appraisal. From Lawton's point of view, taking care of a person with dementia can be a mixed-valence experience that includes both positive and negative caregiving appraisals. The model was tested by empirical study, which found that the positive appraisal (i.e., caregiving satisfaction) had significant negative association with negative appraisal (i.e., perceived caregiving burden) {Park, 2018 #54}. The models were also tested by surveys in the Chinese dementia caregivers (Liu, Insel, Reed, & Crist, 2012). Therefore, based on the theoretical models, caregiving appraisal (including both the positive and negative forms), coping, and psychological wellbeing was selected as the outcome variables.

Therefore, a bibliotherapy protocol was developed based on Lazarus's (1986) and Lawton's (1991) theoretical models; the systematic reviews on caregiving appraisal (Wang, Cheung, et al., 2020) and bibliotherapy (Wang, Bressington, et al., 2020); and the mechanism of bibliotherapy (Figure 1). This study addresses the research gap by exploring the feasibility and acceptability of bibliotherapy with a pilot randomized controlled trial. The efficacy on improving caregiving appraisal, coping, and psychological wellbeing will also be investigated as illustrated by the conceptual framework. As bibliotherapy could provide information and skills on dementia caregiving, knowledge of dementia, attitude toward dementia, and positive aspects of caregiving were also added as outcome variables for exploratory purposes.

2. Objectives and hypotheses

2.1 The objectives

The objectives of this study are:

(1) To explore the feasibility of bibliotherapy among informal caregivers of people with dementia.

(2) To preliminarily evaluate the efficacy of bibliotherapy on improving caregiving appraisal, coping, psychological wellbeing, positive aspects of caregiving, knowledge of dementia, and attitude toward dementia.

(3) To examine the acceptability of bibliotherapy among informal caregivers of people with dementia.

2.2 The hypotheses

The primary alternative hypothesis of this study was: Caregivers in the intervention group, compared to the control group, would demonstrate significantly greater improvements in caregiving appraisal, coping, and psychological wellbeing.

The secondary hypothesis was: Caregivers in the intervention group, compared to the control group, would demonstrate significantly greater improvements in knowledge of dementia, attitude toward dementia, and positive aspects of caregiving.

3. Methods

3.1 Research design

This study adopted a prospective, two-arm pilot randomized controlled trial design. The trial was conducted from January 2019 to August 2019 in Zhengzhou, China. The study was registered in ClinicalTrials.gov (Ref: NCT03852121). This report followed CONSORT guideline.

3.2 Participants and setting

Convenience sampling was used to recruit participants from four hospitals in Zhengzhou, China. The hospital health care professionals referred participants to the research team, and the eligibility screening was conducted by the research team. The eligibility criteria were: (a) caregivers who provide regular care to a person with mild to moderately severe level (Global Deterioration Scale, GDS=4~6) (Reisberg, Ferris, de Leon, & Crook, 1982) of any type of medical diagnosis of dementia for at least 5 hours per week for at least six months; (b) aged 18 or above; (c) not paid for the care provided; (d) assist with at least one of the care recipient's daily activities; (e) be able to read; (f) could be contacted by phone. Caregivers with unstable physical or mental conditions, those with documented cognitive impairment, as well as those involved in another interventional study were excluded.

For a main trial designed with 90% power and two-sided 5% significance, to generate at least a medium standardized effect size, a pilot trial sample size of 25 per arm is needed (Whitehead, Julious, Cooper, & Campbell, 2016). Thus, in this pilot study, assuming an attrition rate of 20% (Heo, 2014), the sample size was 25× (1+20%) =30 in each group. The total sample size was 60. This sample size was also following the rule of thumb of sample size estimation for pilot studies (Whitehead et al., 2016).

3.3 Randomization and blinding

The randomization procedure was guided by the standardized protocol of the National Health and Medical Research Council (NHMRC) Clinical Trials Centre (2013). A set of random numbers was generated by an independent statistician using R software. The R function "sample ()" was used to ensure equal group size at a 1:1 ratio. Simple randomization was used for group allocation. In order to conceal the allocation, an independent research assistant randomly allocated the eligible participants into either the intervention or control group with the random list. The sequence of participants was concealed until groups were assigned. Assessors were blinded to the group allocation of participants.

3.4 Interventions

3.4.1 The intervention group

The intervention was conducted in the caregivers' homes. Participants in the intervention group received eight weekly sessions of professional-guided bibliotherapy without withdrawing from usual care. Each participant was given a bibliotherapy manual. The manual consisted of eight chapters, with each chapter focused on one active component (Supplementary File 1). Knowledge, skills, and examples about the specific component were provided in the chapter, and learning activities were also provided for caregivers to practice. Each chapter has about ten pages. Caregivers were asked to finish reading one chapter (i.e., self-help reading) and receive telephone coaching (i.e., professional guidance) each week. They could finish the reading at a pace, time, and space convenient for them, and they could also review as many times as they want. However, as the telephone coaching aimed to check the completion and solve problems, caregivers were asked to finish reading the designated chapter before the coaching. The telephone coaching was conducted by the telephone coach following the coaching manual. In each telephone coaching, standardized questions about the completion were asked, followed by review sessions based on the participants' completion. The length of each telephone coaching was about 20-30 minutes, based on the understanding of participants. To enhance the caregivers' adherence, an orientation session was provided at the beginning of the intervention. Two individual face-to-face sessions were also conducted to answer any queries from reading the manual. To avoid contamination, they were also asked not to share the reading materials with others before the completion of the intervention.

3.4.2 The control group

Participants in the control group received the usual care provided by the community health centers. The centers provided regular health education lectures and annual physical examinations for the residents. They also provided regular home visits, assistance with a referral from home to community health centers or from centers to hospitals.

3.5 Outcome measures

3.5.1 Feasibility outcomes

The feasibility of this study was measured by the recruitment rate, retention rate, attrition rate, and reasons for not continuing the intervention.

3.5.2 Efficacy outcomes

The participants were investigated by trained research assistants at baseline and immediately post-intervention (the inter-rater reliability=90%). The instruments used are as follows:

Caregiving appraisal: Caregiving appraisal was measured using the Chinese version of the Caregiving Appraisal Scale (Wang, 2005). The original English scale included five subscales. However, during the instrument validation process, only four factors emerged in the Chinese version. The Chinese version Caregiving Appraisal Scale hence included 26 items, divided into 4 subscales: caregiving burden, caregiving satisfaction, caregiving mastery, and caregiving impact. It was a 5-point Likert scale (1 = *disagree a lot* to 5 = *agree a lot*), with higher scores indicate more positive caregiving appraisal. The Cronbach's α of the total scale was 0.883, αs for each subscale were 0.854 (subjective burden), 0.734 (caregiving impact), 0.651 (caregiving mastery), 0.707 (caregiving satisfaction).

Coping: Coping was measured with the Chinese version of the Ways of Coping Questionnaire (Xie, 1998). This questionnaire included 20 items, divided into two subscales: the active coping subscale and the passive coping subscale. It was a 4-point Likert scale (0 = *never* to 3 = *often*). The subscale of passive coping was recoded; higher scores indicate more positive coping. The Cronbach's α was 0.570, α for the active coping subscale was 0.771, and α for the passive coping subscale was 0.550.

Psychological wellbeing: The psychological wellbeing was measured with the shorter Chinese version for Ryff's Psychological Well-being Scale (Li, 2014). It included 18 items, divided into six subscales: positive relations with others, autonomy, environmental mastery, personal growth, purpose in life, and self-acceptance. It was a Likert 6-point scale, with 1 = *strongly disagree* to 6 = *totally agree*. Higher scores indicate better psychological wellbeing. The Cronbach's α was 0.936 for the total scale, αs for the subscales were 0.825 (positive relations with others), 0.709 (autonomy), 0.910 (environmental mastery), 0.812 (personal growth), 0.793 (purpose in life), and 0.866 (self-acceptance) respectively.

Positive aspects of caregiving: Measured by the Chinese version of the Positive Aspects of Caregiving Scale (Lou, Lau, & Cheung, 2015). It was a Likert 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*) regarding the extent to which providing care to their relatives with dementia had enabled them "feel important", "feel appreciated" etc. The scale included 11 items, divided into two subscales: enriching life and affirming self. The Cronbach's α was 0.929 for the total scale, the αs for the subscales were 0.866 (enriching life) and 0.900 (affirming self).

Knowledge of dementia: The Alzheimer's Disease Knowledge Scale was used to measure knowledge of dementia (Carpenter, Balsis, Otilingam, Hanson, & Gatz, 2009). It was a 30-item *true/false* scale that could be used among patients, caregivers, laypersons, and professionals. The Cronbach's α was 0.785.

Attitude toward dementia: The Dementia Attitude Scale was used as the measurement (O'Connor & McFadden, 2010). It was a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Half of the scores were reverse coded, and higher scores indicated more positive attitudes. This scale included 20 items divided into two subscales: dementia knowledge and social comfort.

The Cronbach's α was 0.818 for the total scale, the αs for dementia knowledge and social comfort subscales were 0.777 and 0.762, respectively.

3.5.3 Acceptability of the intervention

Based on Sekhon et al.'s (2017) theoretical framework of acceptability, both concurrent acceptability and retrospective acceptability were assessed. The concurrent acceptability was mainly manifested by the number of sessions attended, self-rated reading completion, self-rated learning activity completion, and telephone coach rated amount of assignment completion. In each telephone coaching, the caregivers were asked to rate themselves with a Likert 5-point scale (1=none, 2=just a little, 3=some, 4=most, 5=all). The telephone coach also rated the participants' completion based on their observation (1=none, 2=just a little, 3=some, 4=most, 5=all). Retrospective acceptability was explored by individual interviews of participants in the intervention group. The guided questions covered several aspects of the intervention, including caregivers' overall feelings of the intervention, their opinions on the contents and dosage of the intervention, as well as the recommendations that could make the intervention more useful for them. Convenience sampling was used to select participants from the intervention group. Theoretical saturation, i.e., no new code representing uncovered patterns emerged, was used as the criteria for saturation.

3.6 Data analysis

Descriptive statistics, Chi-square test, Mann Whitney U test, and independent t-test were used to describe the participants' characteristics and compare the difference between groups at baseline. Generalized estimating equation (GEE) was used to compare the intervention efficacy outcomes because GEE has robust properties in parameter estimation and was also robust to missing values. NVivo software version 12 was used for the qualitative data management. Content analysis with an inductive approach was used to explore the acceptance of the intervention. The "Checklist for researchers attempting to improve the trustworthiness of a content analysis study" was used to guide the analysis (Elo et al., 2014). Two data analyzers worked on the coding independently. Differences in the coding were discussed until consensus was reached. Member checking was conducted to ensure that the coding reflected participants' real perceptions.

3.7 Ethical consideration

Ethical approval was obtained from the ethics committee of The first author's University. The principles of autonomy, non-maleficence and beneficence, and confidentiality were followed. Written informed consent was obtained from all the participants. Confidentiality and anonymity of the participants' materials were also ensured.

4. Results

4.1 Characteristics of participants

Ninety-nine informal caregivers were approached, among which sixty caregivers consented to participation. Thirty participants were randomly allocated to the intervention group, and thirty in the control group (Figure 2). The average age of participants was 61.72 (SD, 12.55). Most of the caregivers were female (61.7%), and about half were spousal caregivers (45.0%). The average duration of caregiving was 3.43 (SD, 2.18) years. The demographics of participants and homogeneity test of baseline data are displayed in Table 1. The outcomes of interest are mostly comparable at baseline except for the total score of psychological wellbeing and four of the subscales, as well as the knowledge of dementia (Table 2, Supplementary File 2).

[Insert Figure 2, Table 1 and Table 2 here]

4.2 Feasibility of the intervention

The eligibility rate of the participants during the screening period was 86.9%, and the recruiting rate for the screened participants was 69.8% (60/86). The retention rate of the participants in the intervention group was 80%, and the retention rate of the control group was 86.7%. The overall attrition rate was 16.7%. No adverse event or harm was reported by the participants. The reasons for attrition are in Figure 2.

4.3 Efficacy of bibliotherapy

The results of GEE showed that bibliotherapy had significant group-by-time interaction effects on caregiving appraisal (Wald χ^2=16.51, p<0.001) and all subscales (Wald χ^2=5.38-10.89, p=0.001-0.020). The effects were significant on the total score of coping (Wald χ^2=8.91, p=0.003) and the active coping subscale (Wald χ^2=17.80, p<0.001). The effect was only significant on the personal growth subscale of psychological wellbeing (Wald χ^2=5.04, p=0.025). The effects were significant on the total score of positive aspects of caregiving (Wald χ^2=12.09, p=0.001) and subscales (Wald χ^2=8.96-9.18, p=0.002-0.003), knowledge of dementia (Wald χ^2=5.71, p=0.017) and attitude toward dementia (Wald χ^2=10.55-56.80, p<0.001) (Table 3, Supplementary File 3).

[Insert Table 3 here]

4.4 Acceptability of the study

Both the self-rated and telephone coach rated completion rates were recorded. In terms of the self-rated completion, the reading (mean ± *SD*, 4.75±0.48) and learning activity completion (mean ± *SD*, 4.38±0.81) were favorable. Among the caregivers who did not drop out, the telephone coach rated overall assignment completion was also favorable (mean ± *SD*, 4.52 ±0.59).

Ten participants in the intervention group were invited for an individual interview. The average age of the interviewees was 57.80 (*SD*, 11.76) years; they have taken care of the patient for 2.85

(*SD*, 1.38) years on average. The majority of caregivers were spousal (40%) or daughter (30%) caregivers. Four themes were identified from the interview: a) overall feelings of the intervention, b) perceptions of the contents of intervention, c) barriers in participating in the intervention, and d) suggestions for further improvement of the intervention (Supplementary File 4).

Overall, the participant endorsed the contents and dosage of the intervention. They have expressed perceived improvements in caregiving knowledge and skills, as well as changed appraisals of stress. However, as many of the participants are older adults, they expressed their barriers in memorizing new knowledge and keeping logs. The intervention was not an extra burden. However, difficulty in focusing on reading was voiced for caregivers who have multiple caregiving duties. Caregivers suggested revising the manual format to be more flexible and user friendly.

5. Discussion

5.1 Findings of this study

This study is one of the first bibliotherapy studies conducted among informal caregivers of people with dementia. It contributed to the body of knowledge by pilot testing a novel evidence-based intervention in the dementia caregiving context. Our findings suggest that bibliotherapy is feasible and acceptable for informal caregivers of people with dementia in terms of the low attrition rate (20%) and positive feedbacks of the intervention. The low attrition rate may be attributable to the fact that the manual was easy-to-read. It may also be caused by the Chinese culture of family cohesion, which motivates them to learn to provide better care. However, when compared with another bibliotherapy study for caregivers of people with psychosis (93%) (Chien, Thompson, et al., 2016), the attendance rate was not as high. It may be because the dosage of the current intervention is higher, and dementia caregivers have greater caregiving burdens than caregivers of people with psychosis (Sinha, Desai, Prakash, Kushwaha, & Tripathi, 2017).

In general, the caregivers endorsed their acceptability of the intervention. The satisfactory acceptability may be because of the experienced improvements. From the post-intervention interviews, caregivers manifested that no extra burden was caused by the intervention, and they shared the perceived improvement in skills, such as daily caregiving skills. It may be because most of the caregivers are spousal caregivers who take care of the care-recipient full time. The intervention provided them an opportunity for the psychological vent. The perceived improvements in caregiving skills manifested that bibliotherapy may improve the care delivered. However, research exploring the efficacy of bibliotherapy in improving the quality of care is still limited. Future studies can be implemented in this area. Caregivers also expressed self-contradictory feelings of seeking help. It was mainly influenced by the Chinese culture of Confucianism and filial piety. In Chinese culture, taking care of the family member was deemed as family responsibilities, and pushing the caregiving duties to outsiders may be treated as unfilial. Therefore, family responsibility and fear of being unfilial prevented informal caregivers from seeking help.

Barriers and suggestions for further improvement of this intervention have also been expressed by the participants. Participants showed barriers in memorizing and keeping logs. It may be because most of the caregivers were older adults (mean age=61.72), who are a vulnerable population for age-related memory decline. Caregivers suggested making the format more user friendly, such as using pictures. This is in line with previous research findings that pictures may help offset the challenges in memorizing (Kempe, Thomas, Memmert, & Koller, 2016). Caregivers also showed different opinions of using technology. Some caregivers showed that using technology may offset their calmly reading barriers, and they could listen and watch even when they were dealing with daily chores. However, other manifested difficulties in using technology.

Therefore, technology literacy may be an essential factor to consider for designing an intervention for older adults.

In this study, participants showed improvements in caregiving appraisal. These results are consistent with study findings on a bibliotherapy randomized controlled trial among family caregivers of people with recent-onset psychosis (Chien, Yip, Liu, & McMaster, 2016). Another in-home training study achieved similar effects on caregiving appraisal. However, the effect of their training was not significant on caregiving mastery (Stolley, Reed, & Buckwalter, 2002). It may be because caregiving mastery is a relatively stable construct manifested by expectations of behavioral competence. Moreover, bibliotherapy can enhance the prediction of ability and knowledge, and therefore was more effective in influencing caregiving mastery.

The intervention group showed significantly greater improvements in the total score of coping and the active coping subscale. The reasons may be because bibliotherapy facilitated positive re-appraisal, which further promote coping. The insignificant effect on passive coping may be because dementia caregivers mostly tend to identify caregiving as a problem, and passive coping strategies are increasing over time (Snyder et al., 2015). Therefore, even if the caregiving appraisal was significantly improved, passive coping strategies may need a longer time to change.

The significant effects on improving positive aspects of caregiving, knowledge of dementia, and attitude toward dementia may be interpreted by the mechanism of bibliotherapy. By going through bibliotherapy, caregivers were provided with knowledge and skills. By comparing with the exemplars provided, they may go through psychological catharsis and generate insight into their caregiving situation, which improves the attitudes toward dementia and develop more positive feelings of caregiving.

Although the effect was not significant on the total score of psychological wellbeing (p=0.06), the outcome difference between groups is larger at post-intervention than that at baseline. A larger sample may be needed to conclude a significant intervention effect. The effect on the personal growth subscale was similar to Pardeck's (2014) study, which deemed bibliotherapy as a practical tool for personal growth. The failure to achieve statistical significance on other subscales may be because caregivers feel socially distressed and emotionally over-involved with the care-recipient during the long-term procedure (Bjørge, Kvaal, Småstuen, & Ulstein, 2017).

5.2 Limitations and implications of this study

This pilot study generally supported the research hypothesis that bibliotherapy was a feasible intervention for informal caregivers of people with dementia and may generate positive effects on improving caregiving appraisal. However, as this is a pilot study, the investigation on the efficacy was still preliminary. Several implications for future studies are made:

In terms of the study population, this study only included caregivers taking care of a person with mild to moderately severe dementia. The feasibility, acceptability, and efficacy for caregivers of people with late-stage dementia are still unsure. Future studies can explore this area. Given the small sample size and single city recruitment in this pilot study, the generalizability of the findings is decreased. More demographic areas can be investigated in future studies. Convenience sampling was used in the post-intervention interview, and there's a possibility that some unexplored perceptions still exist. In terms of the intervention, although the telephone coaching was acceptable for caregivers, psychosocial effects cannot be ignored. This study only examined the total effects of all the active components, and future studies can be designed to explore the most successful active components. In terms of the intervention delivery, some caregivers suggested supplementing the current intervention with technology. More various ways of caregiving delivery may be explored, e.g., book format in company with technology such as App, audio, or video. However, it is important to consider potential limitations in individuals accessing digital strategies. In terms of the control group, as this is a pilot study, usual care was selected as the control condition. So, it was impossible to blind the participants, and the impact of a Hawthorne effect can not be ignored. Control conditions with parallel dosages of intervention can be used in future studies. In terms of the outcomes, all the outcomes of interest were measured by self-reported questionnaires. Socially desired answers cannot be diminished. As this study only tested the effect at immediate post-intervention, the sustained effect is still unclear. Future studies can also explore the middle and long-term sustained effects.

6. Conclusion

The findings of this study demonstrated that bibliotherapy was feasible and acceptable among informal caregivers of people with dementia. It was preliminarily effective on improving caregiving appraisal, active coping, positive aspects of caregiving, personal growth, knowledge of dementia, and attitude toward dementia. However, the efficacy on passive coping and other subscales of psychological wellbeing was not statistically significant.

References

Bjørge, H., Kvaal, K., Småstuen, M. C., & Ulstein, I. (2017). Relationship quality and distress in caregivers of persons with dementia: A cross-sectional study. *American Journal of Alzheimer's Disease & Other Dementias, 32*(3), 157-165. doi:10.1177/1533317517691121

Carpenter, B. D., Balsis, S., Otilingam, P. G., Hanson, P. K., & Gatz, M. (2009). The Alzheimer's Disease Knowledge Scale: development and psychometric properties. *The Gerontologist, 49*(2), 236-247.

Chien, W., Thompson, D., Lubman, D., & McCann, T. (2016). A Randomized Controlled Trial of Clinician-Supported Problem-Solving Bibliotherapy for Family Caregivers of People with First-Episode Psychosis. *Schizophrenia Bulletin, 42*(6), 1457-1466. doi:10.1093/schbul/sbw054

Chien, W., Yip, A., Liu, J., & McMaster, T. (2016). The effectiveness of manual-guided, problem-solving-based self-learning programme for family caregivers of people with recent-onset psychosis: a randomised controlled trial with 6-month follow-up. *International Journal of Nursing Studies, 59*, 141-155. doi:10.1016/j.ijnurstu.2016.03.018

Glasgow, R. E., & Rosen, G. M. (1978). Behavioral bibliotherapy: a review of self-help behavior therapy manuals. *Psychological Bulletin, 85*(1), 1.

Heo, M. (2014). Impact of subject attrition on sample size determinations for longitudinal cluster randomized clinical trials. *Journal of Biopharmaceutical Statistics, 24*(3), 507-522. doi:10.1080/10543406.2014.888442

Lawton, M. P., Kleban, M. H., Moss, M., Rovine, M., & Glicksman, A. (1989). Measuring caregiving appraisal. *Journal of Gerontology, 44*(3), P61-P71. doi:10.1093/geronj/44.3.P61

Lawton, M. P., Moss, M., Kleban, M. H., Glicksman, A., & Rovine, M. (1991). A two-factor model of caregiving appraisal and psychological wellbeing. *Journal of Gerontology, 46*(4), P181-P189. doi:10.1093/geronj/46.4.P181

Lazarus, R. S., & Folkman, S. (1986). *Stress, appraisal, and coping*. New York: Springer Publishing Company.

Li, R.-H. (2014). Reliability and validity of a shorter Chinese version for Ryff's psychological wellbeing scale. *Health Education Journal, 73*(4), 446-452.

Liu, Y., Insel, K. C., Reed, P. G., & Crist, J. D. (2012). Family caregiving of older Chinese people with dementia: testing a model. *Nursing Research, 61*(1), 39-50. doi:10.1097/NNR.0b013e31823bc451

Lou, V. W., Lau, B. H., & Cheung, K. S. (2015). Positive aspects of caregiving (PAC): scale validation among Chinese dementia caregivers (CG). *Archives of Gerontology and Geriatrics, 60*(2), 299-306. doi:10.1016/j.archger.2014.10.019

McKenna, G., Hevey, D., & Martin, E. (2010). Patients' and providers' perspectives on bibliotherapy in primary care. *Clinical Psychology & Psychotherapy, 17*(6), 497-509.

Newman, M. G., Erickson, T., Przeworski, A., & Dzus, E. (2003). Self-help and minimal-contact therapies for anxiety disorders: Is human contact necessary for therapeutic efficacy? *Journal of Clinical Psychology, 59*(3), 251-274. doi:10.1002/jclp.10128

NHMRC Clinical Trials Centre. (2013). An Australian initiative to support clinical trials: Randomization. Retrieved from https://www.ctc.usyd.edu.au/media/600950/ctc-randomisation.pdf

O'Connor, M. L., & McFadden, S. H. (2010). Development and psychometric validation of the Dementia Attitudes Scale. *International Journal of Alzheimer's Disease, 2010.*

Pardeck, J. A. (2014). *Using books in clinical social work practice: A guide to bibliotherapy*: Routledge.

Reisberg, B., Ferris, S. H., de Leon, M. J., & Crook, T. (1982). The Global Deterioration Scale for assessment of primary degenerative dementia. *The American Journal of Psychiatry*.

Sekhon, M., Cartwright, M., & Francis, J. J. (2017). Acceptability of healthcare interventions: an overview of reviews and development of a theoretical framework. *BMC Health Services Research, 17*(1), 88. doi:10.1186/s12913-017-2031-8

Shrodes, C. (1949). *Bibliotherapy: a theoretical and clinical-experimental study.* (Doctoral), Universtiy of California, Berkeley, US.

Sinha, P., Desai, N. G., Prakash, O., Kushwaha, S., & Tripathi, C. B. (2017). Caregiver burden in Alzheimer-type dementia and psychosis: A comparative study from India. *Asian Journal of Psychiatry, 26*, 86-91. doi:https://doi.org/10.1016/j.ajp.2017.01.002

Snyder, C. M., Fauth, E., Wanzek, J., Piercy, K. W., Norton, M. C., Corcoran, C., . . . Tschanz, J. T. (2015). Dementia caregivers' coping strategies and their relationship to health and wellbeing: the Cache County Study. *Aging & Mental Health, 19*(5), 390-399. doi:10.1080/13607863.2014.939610

Stolley, J. M., Reed, D., & Buckwalter, K. C. (2002). Caregiving appraisal and interventions based on the progressively lowered stress threshold model. *American Journal of Alzheimer's Disease & Other Dementias®, 17*(2), 110-120. doi:10.1177/153331750201700211

Vandepitte, S., Van den Noortgate, N., Putman, K., Verhaeghe, S., Faes, K., & Annemans, L. (2016). Effectiveness of supporting informal caregivers of people with dementia: a systematic review of randomized and non-randomized controlled trials. *Journal of Alzheimer's Disease, 52*(3), 929-965.

Wang, L. (2005). *Explore the related factors between caregivers' appraisal of care and quality of family care on older people with disabilities.* (Master), Meiho Institute of Technology, Taiwan.

Wang, S., Bressington, D. T., Leung, A. Y. M., Davidson, P. M., & Cheung, D. S. K. (2020). The effects of bibliotherapy on the mental wellbeing of informal caregivers of people with neurocognitive disorder: A systematic review and meta-analysis. *International Journal of Nursing Studies*. doi:https://doi.org/10.1016/j.ijnurstu.2020.103643

Wang, S., Cheung, D. S. K., & Leung, A. Y. (2019). Overview of dementia care under the three-tier long - term care system of China. *Public Health Nursing, 36*(2), 199-206. doi:10.1111/phn.12573

Wang, S., Cheung, D. S. K., Leung, A. Y. M., & Davidson, P. M. (2020). Factors associated with caregiving appraisal of informal caregivers: A systematic review *Journal of Clinical Nursing*. doi:https://doi.org/10.1111/jocn.15394

Whitehead, A. L., Julious, S. A., Cooper, C. L., & Campbell, M. J. (2016). Estimating the sample size for a pilot randomised trial to minimise the overall trial sample size for the external pilot and main trial for a continuous outcome variable. *Statistical Methods in Medical Research, 25*(3), 1057-1073. doi:10.1177/0962280215588241

Xiao, L. D., Wang, J., He, G.-P., De Bellis, A., Verbeeck, J., & Kyriazopoulos, H. (2014). Family caregiver challenges in dementia care in Australia and China: a critical perspective. *BMC Geriatrics, 14*(1), 6.

Xie, Y. (1998). The reliability and validity test of ways of coping questionnaire. *Chinese Journal of Clinical Psychology, 6*(2), 114-115.

Zhang, T., & Zhao, F. (2011). The relationship between caregiving appraisal, social support and mental health of the primay family caregivers of the disabled. *Chinese Journal of Health Psychology, 19*(5), 563-564.