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Efficacy of Cognitive Behavior Therapy among Caregivers of Dementia: An Outcome Study

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This study was aimed to evaluate the effectiveness of cognitive behavior therapy in reducing caregiver burden and anger as well as improving the physical and mental health among the caregivers of patients with dementia of Alzheimer's type in Pakistani culture. Using the within-subjects design, a sample of eight participants was selected through purposive sampling from psychiatric and neurology clinics in Lahore, Pakistan. Therapeutic intervention was comprised of ten sessions conducted over a period of 5-8 weeks. The main techniques used were psychoeducation, eliciting cognitive distortions, cost-benefit analysis, pie chart, evidence for and against, problem solving, relaxation training, guided imagery, stress management, nutrition education, sleep hygiene, time management, and physical activities. Pre and postassessment was done by using Burden Assessment Scale (Reinhard, Gubman, Horwitz, & Minsky, 1994), General Health Questionnaire-28 (Goldberg, 1972), and State-Trait Anger Expression Inventory (Spielberger, 1999). Descriptive statistics for demographic variables and paired samples *t*-test were used to analyze the data. The results indicated that the therapeutic intervention significantly reduced caregiver's perceived subjective and objective burden, anger, and significantly improved physical and mental health. The results of this study point towards

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the need for devising therapeutic intervention specific to caregivers of patients with dementia and other psychiatric illnesses.

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The worldwide increase in life-span has led to an increase in older population in Pakistan despite economic instability. Due to inadequate resources and lack of insight about disorders of older adults, Pakistan is facing challenges in providing care to its elderly. Six percent of the Pakistani population was estimated to be above 60 years (World Health Organization [WHO], 1998). This number is expected to double by 2025 (Sabzwari & Azhar, 2010). The transition in demographics is due to profound changes in family pattern, social organization, industrialization, and economic growth. Mental illness is a significant leading cause of morbidity and disability among elders. If the age-specific prevalence of dementia is compared between developing and developed countries, three quarter of the cases would be living in the developing countries by 2025 (Prince, 1997). It has now become evident that regional and sociocultural factors regulate perception of health, presentation of illness, and reciprocity between caregivers and care-receivers (Prince, Livingston, & Katona, 2007). These factors should be taken into consideration in prioritizing and organizing services for elders in developing world, as the available health services are insufficient and consequently there is a supreme need to rely on informal support (Patel & Prince, 2001).

Dementia is defined as a syndrome characterized by intellectual impairment due to dysfunctioning of brain with compromises on mental activities in at least three spheres like memory, cognition, language, personality, visuospatial skills, or emotions. The three significantly common symptoms observed in dementia include cognition; personality or mood changes interfering with the interpersonal relations of the individual; and difficulty in performing daily living activities (American Psychiatric Association [APA], 2013). In Pakistan, geriatric care is not considered as a separate entity in the medical domain; elder patients usually consult a general practitioner. Moreover, there are very few facilities for the comprehensive treatment of the elderly. Therefore, the care provided is generally fragmented and the medico-psycho-social needs are not fulfilled (Sabzwari & Azhar, 2010). In the context of traditional family and cultural values, older persons are treated with dignity, respect, and honor in our society. Support, care, and concern for the elderly are expected to come from family members (Prince, 1997). The quality of life of both the caregivers and the care-recipients relies upon how the caregivers adapt to the needs and behavioral concerns of the patient. Criticism and active management are directly proportional to the burden level of caregivers; whereas, encouragement is inversely proportional (Hinrichsen & Niederehe, 1994).

The existing literature suggests that family caregiving of patients with dementia differs from nondementia caregiving in terms of spending significantly greater time in providing care. This leads to a more negative impact upon various domains in the life of caregivers including psychological and physical health issues, caregiver burden, barriers in employment, family conflicts, and limited leisure time for self and family members (Ory, Hoffman, Yee, Tennstedt, & Schulz, 1999; Smale & Dupuis, 2004). Moreover, these negative impacts tend to be persistent even if the sociodemographic factors and intensity of involvement are controlled. Hence, there tends to be a strong need to devise therapeutic intervention for the caregivers of patients with dementia to deal with the challenges faced by them as the caregiving burden contributes to develop feelings of hopelessness, overburden, distress, and impotency to deal with the circumstances (Brodaty, Green, & Koschera, 2003; Selwood, Johnston, Katona, Lyketsos, & Livingston, 2007). This burden remains the same for the caregivers even if the patient is institutionalized (Zarit & Whitlatch, 1992). The psychosocial and behavioral symptoms exhibited by the patients such as screaming, physical aggression, anger, stress, fatigue, wandering, difficulty to facilitate in daily living activities, suspiciousness, and insomnia exacerbate burden level among caregivers. The protective factors used by the caregivers might include informal social supports, psychoeducation about illness, and intervention programs (Cilag, 2002; Karp & Tanarugsachock, 2000).

It has been found that caregivers of patients with dementia have poor physical health such as low immune functioning and wound healing, cardiovascular issues, poor immune response to vaccine, diabetes, ulcers, anemia, arthritis, smoking, alcohol drinking, sleep disturbances, fatigue, high blood pressure, greater psychological morbidity, and a higher risk of mortality (Brodaty & Donkin, 2009; Reinhard, Given, Petlick, & Bemis, 2008). The caregivers usually do not find time to exercise and often forget to take medications on time regarding their own chronic illnesses. Therefore, providing caregiving poses threats to caregivers' own health (Burton, Newsom, Schulz, Hirsch, & German, 1997).

From the above discussion, it seems that the impact of caregiving on the caregivers depends on how they engage in caregiving activities and personal tasks. The caregivers who give priority to caregiving activities over their routine activities tend to compromise the positive aspects of their lives. Caregivers are also involved in activities of daily living such as household tasks, emotional support, medications, regular visits to doctors, and financial management of patients. The demands of caregiving put great burden and can ultimately have a negative impact on their interpersonal relationships and physical and mental health (Shah, Wadoo, & Ltoo, 2010).

Providing care to a person with dementia creates an emotionally turbulent environment for the family members. The caregivers tend to suffer more from emotional issues rather than physical or financial aspects of providing care (Leggett, Zarit, Kim, Almeida, & Klein, 2014). It is also evident from literature that increased anger and depression as well as decreased well-being is a common experience of caregivers (Zarit, 2008). The literature also supports that depressive mood and anger are often experienced emotions among the caregivers and are related to well-being of both the care-recipient and the caregiver (Cuijpers, 2005; Steffen & Merritt, 2012). Moreover, depression and anger tend to increase physical health issues such as cardiovascular disease (Rugulies, 2002). Mehta (2005) conducted a study on family caregivers to examine the relationship between caregivers' attitudes; their gender and stress; and care-recipients' daily living activities and dependency. The result showed that female caregivers were more stressed than male caregivers. The findings indicate a significant inverse relationship between care recipients' daily living activities, dependency, and caregivers' stress. Moreover, caregivers of patients with dementia, hypertension, and Parkinson's disease tend to be more stressed than those providing care to patients with depression, stroke, and other illnesses.

Furthermore, the findings of a qualitative study on anger in caregivers of persons with AIDS showed that intro-punitive and extra-punitive anger were dominant themes in all the interviews (Phillips & Thomas, 1996). However, sleeplessness, aggressive behavior, and behavioral or verbal repetition were the most infuriating behaviors of care-recipients (Tabak, Ehrenfeld, & Alpert, 1997).

It is also evident from literature that family members who are providing care to persons with serious mental illness experience significant negative emotions (Arksey, 2002; Ashworth & Baker, 2000), as they experienced grief and sadness (Rose, Mallinson, & Gerson, 2006); suffer from anxiety and tension (Shankar & Muthuswamy, 2007); remain worried about the future (Rose et al., 2006); and are at risk of depressive symptomatology (Wittmund, Wilms, Mory, & Angermeyer, 2002). In view of literature, the emotional distress is conceptualized in terms of depression, anxiety, and anger (Pilkonis et al., 2011). It has been found that the negative emotions experienced by the caregivers might vary depending on demographic variables such as age, nature of relation to patients, duration of caregiving, and the severity of illness (Karp & Tanarugsachock, 2000; Shankar & Muthuswamy, 2007). The literature is rather scarce on systematic examination between demographic variables of the caregivers and emotional distress experienced by them (Auszniewski & Bekhet, 2014).

Anger seemed to be a common feeling experienced by caregivers of the elderly, but this emotion captured less attention as compared to other emotions related to caregiving. Crespo and Fernández-Lansac (2013) conducted a study in Spain to examine anger and its predictors among caregivers. They assessed anger expression (expression-out, expression-in, and expression index), trait anger, appraisal, stressors, and resources (self-efficacy, coping, and caregiver features). The results indicated that the caregivers showed mild level of anger expression-in as compared to expression-out. It was also concluded that low efficacy of caregivers, emotion focused coping, disruptive behaviors, and poor relationship between patient and the caregiver were significant predictors of anger, expression-out, trait anger, and anger expression index. The findings also indicated that significant predictor of internal anger expression was burden.

Dementia caregiving is associated with physical health issues, emotional distress, and depressive symptomatology (Pinquart & Sorenson, 2006; Vitaliano, Zhang, & Scanlan, 2003). Majorly, the interventions are based on stress and coping model for adaptation to caregiving (Knight, Silverstein, MaCallum, & Fox, 2000) with main focus on reducing depression, burden, and perceived stress through effective coping strategies (self-care, managing behavioral problems, support seeking, etc.). However, psychotherapeutic interventions are empirically validated (Gallagher-Thompson & Coon, 2007) with moderate effect size (Pinquart & Sorenson, 2006); while, cognitive behavioral interventions are linked with high effect size. Cognitive behavior therapy (CBT) challenges and modifies dysfunctional thoughts of the caregivers, as it seems to be the root cause of distress (Gallagher-Thompson & Coon, 2007; Marquez-Gonzalez, Losada, Izal, Perez-Rojo, & Montorio, 2007). Cognitive distortions are stereotypic errors in logic that shape content of automatic thoughts and these errors lay between schemas and automatic negative thoughts (Beck & Emery, 1985; Leahy, 2003). During the state of affective arousal, these cognitive distortions lead the person to narrow focus of attention and eventually intensify behavioral responses (Friedman & Thase, 2006). In CBT, maladaptive cognitions are encouraged to change as they are viewed as antecedents of emotional distress and depression among the caregivers (Leahy, 2003). Thus, a change in cognition leads the caregivers to adapt and better cope with the stressors. Among all psychotherapeutic interventions, cognitive behavioral interventions have highest effect size (Pinquart & Sorensen, 2006).

The efficacy of an intervention lies upon the extent to which the needs of the target population are tailored with special emphasis on reducing their subjective burden; involving their active participation and duration of therapy (Brodaty et al., 2003; Pinquart & Sorensen. 2006; Selwood et al., 2007). In a review study, it has been concluded that individually tailored behavior therapy comprising of six sessions reduced burden and distress in both short- and long-term, but the efficacy of group therapy was lacking (Selwood et al., 2007). Similarly, it has been found that individually tailored family therapy, individual therapy, and counseling sessions targeting specific aspects of caregiving experience reduced depression among caregivers (Mittelman, Brodaty, Wallen, & Burns, 2008). Likewise, significant results were reported for the intervention plan designed for reducing the burden level and improving psychological health of the caregivers (Brodaty et al., 2003).

In view of the literature cited, the current study aimed to evaluate the effectiveness of individual therapy on reducing perceived burden and increasing physical and mental health among caregivers of patients with dementia in Pakistani culture. Research on this topic is rather scanty in our specific sociocultural context. As reviewed above, the studies conducted for the intervention of caregivers so far have had a narrow scope, hence, it might be fruitful to develop a complete protocol for the caregivers addressing the major underlying issues of maladaptive cognitions, affect, and behavior; as well as their physical and mental health. This study aimed to add to the literature in this area and evaluate the efficacy of individual therapy in reducing caregiving burden and anger and improving health of the caregivers. The intervention program designed in this study is the outcome of the themes extracted in a qualitative inquiry and they clearly target the problem areas shared by the caregivers (Ali & Bokharey, 2015).

Method

Research Design

This study employed within-subjects design in which the research participants served as their own controls as they participated both in the experimental and control conditions (Shaughnessy, Zechmeister, & Zechmeister, 2003).

Participants

The current study employed homogeneous purposive sampling as it involves selecting specific people with similar characteristics (Palinkas, Horwitz, Green, Wisdom, & Hoagwood, 2013). The sample size was determined through G-power (Faul, Erdfelder, Lang, & Buchner, 2007). Through compromise analysis by using effect size (*d* = .80) and β/α ratio = 1, a sample of 8 participants with 86% power of the test was determined. The participants were referred from private neurology and psychiatric clinics of Lahore.

The participants were the informal caregivers (men or women) with age range of 40-75 years who were providing care to patients with dementia with moderate severity level. Moreover, they had provided caregiving for at least a period of six months and did not have any psychiatric illness. The participants' relation with the care-recipients was a close one such as a spouse, daughter/son, or a daughter-in-law, etc. The basic information about the participants and patients with dementia is mentioned below (see Table 1 and 2).

Table 1

Demographic Characteristics of Caregivers (N = 8)

Demographics	*f*	%	Range	*M*	*SD*
Age (years)	-	-	40-74	52.38	15.54
Gender					
Men	3	37.5	-	-	-
Women	5	62.5			
Education	-	-	10-16	13.25	2.82
Occupation					
None	6	75	-	-	-
Employed	1	12.5	-	-	-
Retired	1	12.5	-	-	-
Marital Status					
Married	8	100	-	-	-
Duration of treatment (months)	-	-	12-72	42	23
Duration of caregiving (months)	-	-	12-72	40	24
Health status					
No illness	2	25	-	-	-
Illness	6	75	-	-	-

Table 1 shows demographic characteristics of caregivers of patients with dementia. The mean age of the participants is 52 years and majority is women. The majority of the participants has bachelor’s degree and the average monthly income of the participants is 50,000 Rupees (25000-100000). The duration of treatment and caregiving are 3.4 and 3.6 years, respectively. Majority of the caregivers have health related concerns.

Table 2

Demographic Characteristics of Patients with Dementia (N= 8)

	f	%	Range	*M*	*SD*
Age (years)	-	-	67-89	75.13	8.14
Gender					
Men	5	62.5	-	-	-
Women	3	37.5	-	-	-
Education	-	-	10-16	12.75	2.37
Occupation					
None	3	37.5	-	-	-
Retired	5	62.5	-	-	-
Marital Status					
Married	8	100.0	-	-	-
Duration of treatment (months)	-	-	12-72	42.38	23.26
Health status					
Illness	8	100.0	-	-	-

Table 2 shows demographic characteristics of patients with dementia. The mean age of the participants is 75 years and majority is men. The education of majority of the participants is intermediate while the duration of treatment is 3.6 years.

Instruments

A questionnaire was developed by the researchers to collect demographic information.

Burden Assessment Scale (BAS). It was developed by Reinhard et al. (1994) to measure caregiver burden. The 19 items of the scale predict factors of burden. Ten items measure Objective Burden among the caregivers due to responsibilities, while, 9 items assess Subjective Burden. The response categories on each type of burden range from *not at all* to *a lot*. The reliability of the Urdu version of the scale was found to be .90. The Urdu version of the scale was used that was translated by Illyas (2009). The reliability for the present study was found to be .87. The score on each subscale was calculated by summing the scores of items on separate subscales.

General Health Questionnaire-28 (GHQ-28). The participants' health was assessed by using this scale developed by Goldberg (1972). It is a self-administered test designed for psychiatric disorders for nonclinical populations. The scale comprises of four subscales, seven items in each (Somatization, Insomnia, Social Dysfunction, and Severe Depression). The test-retest reliability was found to be .70 or higher (Gibbons, 2004). The Urdu version of the scale was used that was translated by Mansoor and Rana (2004). The reliability for the current study was found to be .87. The summative scores on separate subscales were used to run the analysis.

State-Trait Anger Expression Inventory-2 (STAXI-2). The scale comprises of 57-items which are intended to assess State anger and Trait anger developed by Speilberger (1999). The disposition regarding the experience of anger and intensity was measured by six subscales, but only two broad dimensions mentioned are used in this study. The internal reliability was found to be .90. The Urdu version of the scale was used that was translated by Rasool (2011). The reliability of STAXI-2 for this study was found to be .73. As in the previous instruments, summative scores of items on separate subscales were used.

Procedure

The major teaching hospitals of Lahore were approached for the purpose of recruiting participants for therapy, but due to practical issues such as scarcity of patients in out-patient department, no participant could be referred by these hospitals for three months. Consequently, private clinics were approached, and finally, the research participants were referred by a private psychiatric clinic and a neurology clinic in Lahore. After written consent was obtained, the participants were selected according to inclusion criteria. The booklet of questionnaire was administered as pretreatment assessment prior to beginning therapy session. Eight individuals were selected for the implementation of therapeutic goals.

Initially, it was planned to conduct sessions twice weekly over a span of five weeks, but it was not feasible for some of the participants due to their caregiving responsibilities. Therefore, the duration of the therapy sessions varied between 5-8 weeks. Each session lasted for 45-60 minutes. A total of 80 structured sessions (3600 hours) were conducted with all participants. The therapeutic sessions were conducted at the mentioned clinics in Lahore. The agenda of each session was structured according to the qualitative study (Ali & Bokharey, 2015). After having 10 sessions (see Table 3) of therapy, each participant was reassessed with the same measures to estimate the effectiveness of therapeutic intervention.

Some of the issues faced during therapeutic sessions included delay in sessions due to unavailability of the participants at the mentioned appointment. Each of the participants attended all the sessions. No mortality was encountered during the entire data collection period.

Table 3

Structured Intervention Program for Caregivers of Patients with Dementia (N = 8)

Sessions	Target Behavior	Strategies	Homework Assignments
1	Rapport building and clinical interview	Rapport building, clinical interview (Gelder, Gath, Harison & Cowen, 2006), Problem priority list	Pretherapy baseline of negative thoughts, emotions, and behaviors
2	Psychoeducation and case conceptualization	Normalizing, psycho-education (Llanque, 2011), case conceptualization (Shah et al., 2010)	Diaphragmatic breathing (Spiegler & Guevremont, 1998)
3	Cognitive restructuring	Functional analysis (Leahy, 2003)	Identify and elicit cognitive distortions (Leahy, 2003)
4	Relaxation training and coping skills	Problem solving (Bellack, Mueser, Gingerich, & Ageresta, 2004)	Relaxation exercise (Miltenberger, 1997)
5	Anger management	psychoeducation, case conceptualization, (Garratt & Blackburn, 2007), pie chart (Leahy, 2003)	Anger thermometer (O'Neill, 1999), cost-benefit analysis (Leahy, 2003)
6	Assertiveness training	Interpersonal styles, assertive body language (Rimm & Masters, 1974); assertiveness techniques (Spiegler & Guevremont,1998)	Ladder principle (Spiegler & Guevremont,1998)

Continued...

Sessions	Target Behavior	Strategies	Homework Assignments
7	Stress management and self-soothing exercises	Define stress and symptoms, types of stressors, the General Adaptation Syndrome (Davis, Eschelman, & McKay, 2000; Seaward, 2002)	Guided imagery (Klinic Community Health Centre [KCHC], 2010), triple column (Leahy, 2003)
8	Subjective burden management and physical health	Evidence for and against, bill of rights (Leahy, 2003), nutrition education (Cohen, 2006; Johnson et al., 2008)	Physical activities- walk, exercise (Johnson et al., 2008)
9	Sleep hygiene education and time management training	Sleep hygiene education and principle (Williams & Carey, 2003), time management – the 11timetheives, time management matrix, elements of effective time management (Mantha, 2006)	Identification of sleep hygiene difficulties and monitoring chart (Williams & Carey 2003), coping statements (Davis et al., 2000)
10	Relapse prevention and social support service	Counseling regarding establishing support-group, self-efficacy, relapse prevention (Vivyan, 2009), therapy blueprint (Sperry, 2003)	Dialogues with family members, biblio therapy (Ellis & MacLaren,1998)

Ethical Considerations

This study was approved by the Departmental Doctoral Programme Committee at the Centre for Clinical Psychology, University of the Punjab, Lahore, Pakistan. The purpose of the study was communicated in detail and the participants were informed about the nature and delivery of the therapy; time duration between sessions; pre and postassessment; and some information was provided about the outline of the therapy. Written informed consent was obtained from the caregivers before collecting data in which confidentiality was assured and permission for the recording was taken. The sessions were recorded to ensure the authenticity of the study. The participants were given the right to withdraw from research at any time.

Results

Paired samples *t*-test to compare means before and after therapeutic intervention were computed.

Table 4 shows the mean differences in burden, anger, and physical, and mental health before and after the implementation of CBT.

Table 4
CBT Mean Differences on Burden, General Health, and State-Trait Anger of Caregivers (N = 8)

	Time 1		Time 2				95% CI		Cohen's
Variables	*M*	*SD*	*M*	*SD*	*t*(7)	*p*	*LL*	*UL*	*d*
Objective Burden	2.71	.69	1.90	.38	5.32	.00	.45	1.17	.89
Subjective Burden	2.59	.68	1.77	.47	4.57	.00	.39	1.24	.87
Somatization	2.00	.71	1.23	.20	2.62	.03	.07	1.46	.70
Insomnia	1.82	.57	1.26	.16	2.49	.04	.02	1.07	.69
Social Dysfunction	2.21	.55	1.92	.18	1.41	.20	-.90	0.76	.11
Severe Depression	1.37	.32	1.07	.10	3.07	.01	.06	0.53	.76
State Anger	5.00	1.13	3.40	.45	5.02	.00	.84	2.53	.88
Trait Anger	6.85	1.54	5.10	.55	4.38	.00	.80	2.69	.86

Note. CI = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

The results indicate that CBT significantly reduces burden level among dementia caregivers which means that CBT is effective for individuals who take caregiving as taxing and burdensome due to their psychological problems. Moreover, the effectiveness of CBT in improving physical and mental health of caregivers is also proved significant; thereby, indicating that the therapy is fruitful in achieving a complete state of physical, mental, and social well-being. Lastly, it is also found that the therapy significantly reduces anger among the caregivers which indicates that CBT is effective for caregivers who react aggressively due to antagonistic thoughts and physiological arousal.

Discussion

Our findings about the therapy being effective in relieving burden among the caregivers are consistent with the other studies that showed significant alleviation of burden and improvement in mental health of the caregivers of dementia (Brodaty et al., 2003; Smits et al., 2007). The current study also employed the efficiency of a structured multicomponent intervention based on the common issues faced by the participants such as burden level, low social support, and poor daily living activities. Our findings are in line with the previous findings that provided evidence that intervention program was significant in enhancing the quality of life of the caregivers and reducing burden and psychological morbidity by improving social support and coping skills (Belle et al., 2006; Spijker et al., 2009; Thompson et al., 2007).

The participants in the current study were provided nutrition education in terms of increasing intake of whole grains, potassium, vitamins, vegetables, fruits, low-fat milk products, and decreasing sodium use. Moreover, another important component of the plan included physical activity and to maintain body weight. This education proved to be helpful in reducing their subjective burden level. These findings are supported by the review study that concluded that nutrition education played a potential role in improving quality of life and led to delay in morbidity by altering their maladaptive cognitions regarding physical health (Johnson et al., 2008).

The result of the present study are also in line with the previous research that applied structured intervention to alleviate stress and the results indicated that the intervention relieved the stress among caregivers (Nasr & Kausar, 2009; Nobili et al., 2004). Therefore, it might be concluded that the structured intervention tends to have more significant impact as compared to nonstructured one.

In our study, we found significant improvement in the physical and mental health of the caregivers. Some aspects of intervention program provided psychoeducation and support to the caregivers as well as the problem solving skills to enhance their efficacy to deal with the issues. Moreover, relaxation exercises were all designed to improve the physical and mental health. These findings are in line with the study that focused on the above mentioned aspects to examine the effectiveness of a structured program in a group of dementia caregivers (Hosaka & Sugiyama, 1999). Furthermore, our findings are also consistent with another study in which the intervention plan comprising of sleep hygiene principles, physical exercises, and stress management strategies significantly improved the general physical and mental health of the caregivers (McCurry, Logdson, Teri, & Vitiello, 2007).

The findings of this study also correlate with the study that targeted disturbed sleep patterns, physical health, and burden among the Parkinson's caregivers. The management plan implemented comprised of only CBT based techniques in order to test the efficacy of the therapy in alleviating burden, establishing support group, and improving physical state of the participants (Secker & Brown, 2005).

Lastly, this study endeavored to ascertain the efficacy of therapy in reducing the anger among the caregivers and found significant improvement in the anger at the posttreatment assessment. Marquez-Gonzalez, Lopez, Romero-Moreno, and Losada (2012) conducted a study on caregivers of patients with dementia and found the role of anger as mediator between depression and appraisal of problem behaviors. The structured intervention program involved the implementation of the anger management training, self-efficacy skills, and coping strategies; which helped in reducing anger among the caregivers of patients with dementia. For, instance, one of the participants reported, "*These sessions have been a great help, I wish I had known that these services were available earlier so that I could manage the caregiving effectively*". Similar findings were reported in a study where psychoeducational intervention, coping strategies, and self-efficacy skills helped in reducing the anger (Coon, Thompson, Steffen, Sorocco, & Gallagher-Thomson, 2003).

Limitations and Implications

An important limitation of this study was a small sample size and lack of a control group due to the time constraints issues, as it was a time bound study. For the same reason, gender differences couldn't be addressed. This study basically focused on short-term efficacy of CBT on the caregivers. A more effective strategy would have been conducted in sessions with longer gaps or to ascertain improvement on follow-ups couple of months later; future research on this subject needs to focus on these issues. An important implication of this study is to devise indigenous and idiosyncratic therapeutic plans for the caregivers not only regarding dementia, but also around other long standing and debilitating illnesses.

Conclusion

It is safe to conclude that CBT is capable of bringing about a significant reduction in the burden and anger, and can have positive impact on health among caregivers. The institution of family is still well-integrated in our socio-cultural context, and the burden of caregiving usually falls on the shoulders of family members on account of insufficient health care services. Therefore, the studies on therapeutic intervention of the caregivers are a dire need and the current study seems to be an objective and an authentic step in this direction.

The phenomenon of caregiving is an important, yet sensitive area that has rarely been focused upon in the Asian culture. In reference to the eastern values, unconditional regard is given to elders, but we need to remember that caregivers have their limits of endurance. Unless their stress is identified and dealt with, they can perform caregiving only at the cost of their own health, which is a very heavy price to pay. There is a need to develop awareness about the culturally sensitive phenomena like caregiving and undo the *taken-for-granted* attitude around this important service.

References

Ali, S., & Bokharey, I. Z. (2015). Maladaptive cognitions and physical health of the caregivers of dementia: An interpretative phenomenological analysis. *International Journal of Qualitative Studies on Health and Well-being, 10*, 28-34.

American Psychiatric Association (APA; 2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Arksey, H. (2002). Combining informal care and work: Supporting carers in the workplace. *Health and Social Care in the Community, 10*(3), 151-161.

Ashworth, M., & Baker, A. H. (2000). Time and space: Carers' views about respite care. *Health and Social Care in the Community, 8*(1), 50-56.

Auszniewski, J. A., & Bekhet, A. K. (2014). Factors associated with the emotional distress of women family members of adults with serious mental illness. *Archives of Psychiatric Nursing, 28,* 102-107.

Beck, A. T., & Emery, G. (1985). *Anxiety disorders and phobias: A cognitive perspective*. New York, USA: Basic Books.

Bellack, A. S., Mueser, K. T., Gingerich, S., & Ageresta, J. (2004). *Social skills training for schizophrenia*. New York: The Guilford Press.

Belle, S. H., Burgio, L., Burns, R., Coon, D., Czaja, S. J., Gallagher-Thompson, D., … Zhang, S. (2006). Enhancing the quality of life of dementia caregivers from different ethnic or racial groups: A randomized controlled trial. *Annals of Internal Medicine, 145*(10), 727-738.

Brodaty, H., & Donkin, M. (2009). Family caregivers of people with dementia. *Dialogues in Clinical Neuroscience, 11*(2), 217-228.

Brodaty, H., Green, A., & Koschera, A. (2003). Meta-analysis of psychosocial interventions for caregivers of people with dementia. *Journal of the American Geriatrics Society*, *51*(5), 657-664.

Burton, L. C., Newsom, J. T., Schulz, R., Hirsch, C. H., & German, P. S. (1997). Preventive health behaviors among spousal caregivers. *Preventive Medicine, 26*(2), 162-169.

Cilag, J. (2002). Behavioral and psychological symptoms of dementia-educational pack. *International Psychogeriatric Association, 4,* 1-22.

Cohen, N. (2006). *Nutrition resource manual for adult day health programs.* Retrieved from http://www.morethanameal.info/manual/pdf/MoreThanAMeal_manual.pdf

Coon, D. W., Thompson, L., Steffen, A., Sorocco, K., & Gallagher-Thomson, D. (2003). Anger and depression management: Psychoeducational skill training interventions for women caregivers of a relative with dementia. *The Gerontologist, 43*(5), 678-689.

Crespo, M., & Fernández-Lansac, V. (2013). Factors associated with anger and anger expression in caregivers of elderly relatives. *Aging & Mental Health, 12,* 219-222.

Cuijpers, P. (2005). Depressive disorders in caregivers of dementia patients: A systematic review. *Aging and Mental Health*, *9*, 325-330.

Davis, M., Eschelman, E. R., & McKay, M. (2000). *The relaxation and stress reduction workbook* (5thed.). Oakland: New Harbinger Publications.

Ellis, A., & MacLaren, C. (1998). *Rational emotive behavior therapy: A therapist's guide.* USA: Impact Publishers.

Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2007). G-Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191.

Friedman, E. S., & Thase, M. E. (2006). Cognitive–behavioral therapy for depression and dysthymia. In D. J. Stein, D. J. Kupfer, & A. F. Schatzberg (Eds.), *Textbook of mood disorders* (pp. 353-371). Washington, DC: American Psychiatric Publishing.

Gallagher-Thompson, D., & Coon, D. W. (2007). Evidence-based psychological treatments for distress in family caregivers of older adults. *Psychology and Aging, 22*(1), 37-51.

Garratt, L., & Blackburn, P. (2007). *Anger management*. Retrieved from www.newcastlehealthyminds.nhs.uk/.../workbook-3.-strategies-to-ma

Gelder, M., Gath, D., Harison, P., & Cowen, P. (2006). *Shorter Oxford textbook of psychiatry.* London: Oxford University Press.

Gibbons, P. (2004). Assessment of the factor structure and reliability of the 28 item version of the General Health Questionnaire (GHQ-28) in El Salvador. *International Journal of Clinical and Health Psychology, 4*(2), 389-398.

Goldberg, D. (1972). *A user's guide to the General Health Questionnaire.* Windsor: NFER- Nelson

Hinrichsen, G. A., & Niederehe, G. (1994). Dementia management strategies and adjustment of family members of older patients. *Gerontologist, 34*(1), 95-102.

Hosaka, T., & Sugiyama, Y. (1999). A structured intervention for family caregivers of dementia patients: A pilot study. *Tokai Journal of Experimental and Clinical Medicine, 24*(1), 35-39.

Illyas, R. (2009). *Expressed emotion and burden of care among relatives of patients with schizophrenia* (Unpublished master's thesis). Clinical Psychology Unit, Government College University, Lahore, Pakistan.

Johnson, M. A., Park, S., Penn, D., McClelland, J. W., Brown, K., & Alder, A. (2008). Nutrition education issues for older adults. *The Forum for Family and Consumer Issues, 13*(3), 67-69.

Karp, D. A., & Tanarugsachock, V. (2000). Mental illness, caregiving, and emotion management. *Quality Health Research, 10*(1), 6-25.

Klinic Community Health Centre. (KCHC; 2010). *Stress and stress management.* Retrieved from http://hydesmith.com/de-stress/ files/Stress Mgt .pdf

Knight, B. G., Silverstein, M., McCallum, T. J., & Fox, L. S. (2000). A sociocultural stress and coping model for mental health outcomes among African-American caregivers in Southern California. *The Journals of Gerontolology. Series B: Psychological Sciences and Social Sciences*, *55*(3), 142-50.

Leahy, R. (2003). *Cognitive therapy techniques: A practitioner's guide*. NY: Guilford Press.

Leggett, A. N., Zarit, S. H., Kim, K., Almeida, D. M., & Klein, L. C. (2014). Depressive mood, anger, and daily cortisol of caregivers on high-and low-stress days. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 70*(6), 820-829.

Llanque, S. M. (2011). *Impact of a psychoeducational intervention on dementia caregiving*. Retrieved from https://mospace.umsystem.edu/ xmlui/ handle/10355/12320.

Mansoor, M., & Rana, M. H. (2004). Standardization of Urdu version of GHQ-28. *Journal of Pakistan Psychiatric Society, 2*(1), 56-59.

Mantha, S. S. (2006). *Handbook on time management skills*. Retrieved from http://www.cgg.gov.in/publicationdownloads2a/handbook%20on%20mgt %20di.pdf

Marquez-Gonzalez, M., Lopez, J., Romero-Moreno, R., & Losada, A. (2012). Anger, spiritual meaning, and support from the religious community in dementia caregiving. *Journal of Religion and Health, 51*, 179-186.

Marquez-Gonzalez, M., Losada, A., Izal, M., Perez-Rojo, G., & Montorio, I. (2007). Modification of dysfunctional thoughts about caregiving in dementia family caregivers: Description and outcomes of an intervention programme. *Aging & Mental Health*, *11*(6), 616-625.

McCurry, S. M., Logdson, R. G., Teri, L., & Vitiello, M. V. (2007). Sleep disturbances in caregivers of persons with dementia: Contributing factors and treatment implications. *Sleep Medicine Reviews*, *11*(2), 143-153. doi:10.1016/j.smrv.2006.09.002

Mehta, K. K. (2005). Stress among family caregivers of older persons in Singapore. *Journal of Cross Cultural Gerontology, 20*, 319-334. doi 10.1007/s10823-006-9009-z

Miltenberger, R. G. (1997). *Behavior modification: Principles and procedures*. Pacific Grove, CA: Brooks/Cole.

Mittelman, M., Brodaty, H., Wallen, A. S., & Burns, A. (2008). A three-country randomized controlled trial of a psychological intervention for caregivers combined with pharmacological treatment for patients with Alzheimer disease: Effects on caregiver depression. *American Journal of Geriatric Psychiatry, 16*, 893-904.

Nasr, T., & Kausar, R. (2009). Psychoeducation and the family burden in schizophrenia: A randomized controlled trial. *Annals of General Psychiatry, 8*(17). doi:10.1186/1744-859X-8-17

Nobili, A., Riva, E., Tettamanti, M., Lucca, U., Liscio, M., Petrucci, B., & Porro, G. S. (2004). The effect of a structured intervention on caregivers of patients with dementia and problem behaviors: A randomized controlled pilot study. *Alzheimer Disease and Associated Disorders, 18*(2), 75-82.

O' Neill, H. (1999). *Managing anger*. London: Whurr Publishers.

Ory, M. G., Hoffman, R. R., Yee, J. L., Tennstedt, S., & Schulz, R. (1999). Prevalence and impact of caregiving: A detailed comparison between dementia and nondementia caregivers. *The Gerontologist, 39*(2), 177-185.

Palinkas, L. A., Horwitz, S. M., Green, C. A., Wisdom, N., & Hoagwood, K. (2013). Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and Policy in Mental Health, 42*(5), 533-44.

Patel, V., & Prince, M. (2001). Ageing and mental health in a developing country: Who cares? Qualitative studies from Goa, India. *Psychological Medicine*, *31*, 29-38.

Phillips, K. D., & Thomas, S. P. (1996). Extrapunitive and intropunitive anger of HIV caregivers: Nursing implications. *Journal of the Association of Nurses in AIDS Care*, *7*(2), 17-27.

Pilkonis, P. A., Choi, S. W., Reise, S. P., Stover, A. M., Riley, W. T., & Cella, D. (2011). Items banks for measuring emotional distress from the Patient-Reported Outcomes Measurement Information System (PROMIS): Depression, anxiety, and anger. *Assessment, 18*(3), 263-283.

Pinquart, M., & Sorensen, S. (2006). Helping caregivers of persons with dementia: Which interventions work and how large are their effects? *International Psychogeraitrics, 18*(4), 577-595.

Pinquart, M., & Sorensen, S. (2003). Differences between caregivers and noncaregivers in psychological health and physical health: A meta-analysis. *Psychology and Aging, 18*, 250-67.

Prince, M. J. (1997). The need for research on dementia in developing countries. *Tropical Medicine and Health, 2*, 993-1000.

Prince, M., Livingston, G., & Katona, C. (2007). Mental health care for the elderly in low-income countries: A health systems approach. *World Psychiatry, 6*(1), 5-13.

Rasool, F. (2011). *Translation and adaptation of STAXI-2 in Urdu* (Unpublished manuscript). Institute of Applied Psychology, University of the Punjab, Lahore, Pakistan.

Reinhard, S. C., Given, B., Petlick, N. H., & Bemis, A. (2008). *Supporting family caregivers in providing care*. Retrieved from http://www.ncbi.nlm.nih.gov

Reinhard, S. C., Gubman, G. D., Horwitz, A. V., & Minsky, S. (1994). Burden assessment scale for families of the seriously mentally ill. *Evaluation and Program Planning, 17*(3), 261-269. doi:10.1016/0149-7189(94)90004-3

Rimm, D. C., & Masters, J. C. (1974). *Behavior therapy*. New York: Academic Press.

Rose, L. E., Mallinson, R. K., & Gerson, L. D. (2006). Mastery, burden, and areas of concern among family caregivers of mentally ill persons. *Archives of Psychiatric Nursing, 20*(1), 41-51.

Rugulies, R. (2002). Depression as a predictor for coronary heart disease: A review and meta-analysis. *American Journal of Preventive Medicine*, *23*, 51-61. doi: 10.1016/S0749-3797(02)00439-7

Sabzwari, S. R., & Azhar, A. (2010). Ageing in Pakistan: A new challenge. *Ageing International*, *36,* 423-427. DOI: 10.1007/s12126-010-9082-z

Seaward, B. L. (2002). *Managing stress* (3rd ed.). San Francisco: John and Bartlett Publishers.

Secker, D. L., & Brown, R. G. (2005). Cognitive behavioral therapy for carers of patients with Parkinson's disease: A preliminary randomized controlled trial. *Journal of Neurology, Neurosurgery, & Psychiatry, 76,* 491-497. doi: 10.1136/jnnp.2004.04229.

Selwood, A., Johnston, K., Katona, C., Lyketsos, C., & Livingston, G. (2007). A systematic review of the effect of psychological interventions on family caregivers of people with dementia. *Journal of Affective Disorders, 101*, 75-89.

Shah, A. J., Wadoo, A., & Ltoo, J. (2010). Psychological distress in carers of people with mental disorders. *British Journal of Medical Practitioners, 3*(3), 327-328.

Shankar, J., & Muthuswamy, S. S. (2007). Support needs of family caregivers of people who experience mental illness and the role of mental health services. *Families in Society: The Journal of Contemporary Social Services, 88*(2), 302-310.

Shaughnessy, J. J., Zechmeister, E. B., & Zechmeister, J. S. (2003). *Research methods in psychology* (6th ed.). New York: The McGraw-Hill Companies.

Smale, B., & Dupuis, S. L. (2004). *Caregivers of persons with dementia.* Retrieved from http://www.marep.uwaterloo.ca/PDF/InTheirOwnVoices-LiteratureReview.pdf

Smits, H. M., Lange, J. D., Dro, R., Meiland, F., Vernooij-Dassen, M., & Margriet, A. (2007). Effects of combined intervention programmes for people with dementia living at home and their caregivers: A systematic review. *International Journal of Geriatric Psychiatry, 22*, 1181-1193. doi: 10.1002/gps.1805.

Sperry, L. (2003). *Cognitive behavior therapy of DSM-IV-TR personality disorders* (2nd ed.). Retrieved from http://www.amazon.com/Cognitive-Behavior-DSM-IV-TR-Personality-Disorders/dp/0415950759

Spiegler, M. D., & Guevremont, D. C. (1998). *Contemporary behavior therapy.* USA: Brooks Publishing Company.

Spielberger, C. D. (1999). *State-Trait Anger Expression Inventory-2* (2nd ed.). Camberwell: Psychological Publications.

Spijker, A., Verhey, F., Graff, M., Grol, R., Adang, E., Wollersheim, H., & Vernooij-Dassen, M. (2009). Systematic care for caregivers of people with dementia in the ambulatory mental health service: Designing a multicentre, cluster, randomized, controlled trial. *BioMed Central Geriatrics*, *9*(21). doi:10.1186/1471-2318-9-21

Steffen, A. M., & Merritt, S. (2012). Idiographic anger ratings by female dementia family caregivers: Generalizability and preliminary validity. *Clinical Gerontologist*, *35*, 205-220.

Tabak, N., Ehrenfeld, M., & Alpert R. (1997). Feelings of anger among caregivers of patients with Alzheimer's disease. *International Journal of Nursing Practice, 3,* 84-88.

Thompson, C. A., Spilsbury, K., Hall, J., Birks, Y., Barnes, C., & Adamson, J. (2007). Systematic review of information and support interventions for caregivers of people with dementia. *Bio Med Central Geriatrics*, *7*(18). doi: 10.1186/1471-2318-7-18

Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous to one's physical health? A meta-analysis. *Psychological Bulletin, 129*(6), 946-972.

Vivyan, C. (2009). *Maintaining progress*. Retrieved from http://www.getselfhelp.co.uk/docs/SelfHelpCourse.pdf

Williams, D. A., & Carey, D. M. (2003). *Sleep hygiene*. Retrieved from http://www.med.ufl.edu/rheum/fmsSleep.pdf

Wittmund, B., Wilms, H. U., Mory, C., & Angermeyer, M. C. (2002). Depressive disorders in spouses of mentally ill patients. *Social Psychiatry and Psychiatric Epidemiology, 37*(4), 177-182.

World Health Organization. (WHO; 1998). *World health report: Life in 21st century*. Geneva: Publishers Author.

Zarit, S. H. (2008). Diagnosis and management of caregiver burden in dementia. *Handbook of Clinical Neurology*, *89*, 905-910. doi:10.1016/S0072-9752(07)01209-2

Zarit, S. H., & Whitlatch, C. J. (1992). Institutional placement: Phases of the transition. *The Gerontologist, 32*, 665-672.

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