Journal of Religion and Health (2019) 58:1444–1452
https://doi.org/10.1007/s10943-019-00840-8

ORIGINAL PAPER

Religious Coping in Caregiver of Patients with Acquired Brain Injuries

Francesco Corallo[1] · Lilla Bonanno[1] · Caterina Formica[1,2] · Federica Corallo[1] · Simona De Salvo[1] · Viviana Lo Buono[1] · Marcella Di Cara[1] · Antonella Alagna[1] · Carmela Rifici[1] · Placido Bramanti[1] · Silvia Marino[1,3]

Published online: 16 May 2019
© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

Caregivers play a crucial role in physical and psychological management in terms of assistance. For this reason, it is important for caregivers to find better coping strategies to minimize a possible physical and emotional burden. The aim of our study is to demonstrate how the religious coping can influence the burden of caregivers about health care of patients with severe brain injuries. Caregivers were, respectively, divided into two groups: 31 religious believers and 20 unbelievers. We submitted the questionnaires to participants, which investigate the caregiver burden, presence of depressive symptoms and kind of coping strategies adopted. Our results demonstrated that participants with religious belief used avoidance strategies more frequently compared to non-believers' group. We want to improve adaptive coping strategies to upgrade the awareness of caregiver, supporting burden and distress. A problem-solving training might improve quality of life in terms of social and psychological wellness.

Keywords Coping · Caregiver · Burden · Neurological disorders · Religious coping

Psychologist/Psychotherapist researcher at the IRCCS Neurolesi Centre Bonino Pulejo since 10 years, operating in the field of severe acquired cerebral lesions. The intervention is carried out both on patients and on their caregivers. Most of the publications and scientific activity concern the approach and interaction of caregivers in relation to cerebral lesions patients, investigating the quality of life and coping style and the possible variables influencing these constructs.

✉ Francesco Corallo
francesco.corallo80@yahoo.it

[1] IRCCS Centro Neurolesi "Bonino Pulejo", S.S. 113, Via Palermo, C.da Casazza, 98124 Messina, Italy

[2] Biomedical Department of Internal Medicine and Medical Specialties, University of Palermo, Palermo, Italy

[3] Department of Biomedical and Dental Sciences and Morphological and Functional Imaging, University of Messina, Via Consolare Valeria, Messina, Italy

Introduction

Acquired brain injuries (ABIs) included different types of cerebral lesion: traumatic brain, haemorrhagic stroke, ischaemic stroke, anoxia and hypoxia. After a tragic event, the patients could show several cognitive and motor deficits and limitation in daily living (Blake 2008; Fianco et al. 2015; Avesani et al. 2018; Ciurli et al. 2011).

Caregivers play a crucial role in physical and psychological management in terms of assistance (Covelli et al. 2016). It is important for caregivers to find better coping strategies to minimize a possible physical and emotional disruption during health care (Corallo et al. 2018). Caregivers showed different levels of distress due to diagnosis and prognosis severity. Caregivers report mental and physical fatigue associated with patient's assistance (Blake 2008; Chadda et al. 2007; Guevara et al. 2016; Moretta et al. 2014). In particular, they showed depressive and anxiety symptoms and sometimes psychiatric symptoms such as somatization, paranoid ideation and psychoticism (Fianco et al. 2015; Pagani et al. 2014, 2014; Corallo et al. 2015).

Coping strategies' adaptation could be the solution to avoid the burden. Coping has been defined as 'the thoughts and behaviours used to manage the internal and external demands of situations that are appraised as stressful' (Folkman & Moskowitz 2004). Lazarus and Folkman (1984) described two types of coping strategies: problem-focused and emotional-focused. The first one indicates a direct and active intervention on problems. The second response is directed on reduction in negative emotions associated with problem (Folkman & Moskowitz 2004). The latter type of response is also considered maladaptive strategy (Chadda et al. 2007; De la Morena & Cruzado 2013). Literature studies investigated which coping strategies were generally adopted by caregivers of brain injury patients (Corallo et al. 2018).

Corallo et al. (2018) showed that religious coping seems to be a useful strategy. Several studies performed on adaptive coping highlighting how the religion plays an important role to cope with immediate demands of stressful events (Folkman & Moskowitz 2004; Krägeloh et al. 2012; Pearce et al. 2016). Pearce et al. (2016) described religious coping as a predictor of positive outcome about stress level during a tragic event. Therefore, religion and spiritual brief seem to be associated with active and positive coping form (Rabinowitz et al. 2009). The aim of our study is demonstrated how religious coping can influence the burden of caregivers about health care of patients with severe ABI.

Materials and Methods

Participants

We enrolled 51 caregivers, having 20 females and 31 males with a mean age of 59.39 (DS ± 16.17), of patients with ABI: 22 patients with haemorrhagic stroke,

14 patients with ischaemic stroke, 8 traumatic brain injury, 2 hypoxia, 2 tumours and 3 encephalitis. Patients were admitted to the rehabilitative unit after 4 months from acute event. Patients' inclusion criteria were as follows: Level of Cognitive Functioning ≤ 4; Coma Recovery Scale-Revised ≤ 13; Disability Rating Scale ≥ 12. We excluded patients with chronic stroke. Caregivers were, respectively, divided into two groups: 31 religious believers and 20 unbelievers (see Table 1). Items 7, 18, 48 and 60 of Coping Orientations to Problem Experiences (COPE) were used to distinguish between believers and non-believers' groups. We excluded, from our study, caregivers with physical and mental disabilities because they are not able to take care of their relatives.

Measurement

The period of enrolment was October 2017–April 2018. Patients were admitted to our institution for at least 1 month. Healthcare professionals presented the study protocol to the participants. Informed consent was provided, and confidentiality was guaranteed. Local ethics committee approved the study. All caregivers submitted the clinical and behavioural scales such as the Beck Depression Inventory (BDI-II), The Coping Orientations to Problem Experiences (COPE) and the Caregivers Burden Inventory (CBI). The *Beck Depression Inventory* (BDI-II) is a 21-item self-report measure that evaluates the presence of depressive symptoms. The 'total score' ranges from 0 to 63; high score indicates the presence of major depressive symptoms (Beck et al. 1996). The *Coping Orientations to Problem Experiences* (COPE) is a 60-item self-report questionnaire that evaluates the frequency of use of 15 different coping strategies. Total scores were summarized into five factors: namely 'Social Support' (SS) 'Avoidance Strategies' (AS), 'Positive Attitude' (PA), 'Problem Solving' (PS) and 'Turning to Religion' (TR). Higher scores indicate that a particular coping strategy is more frequently used (Sica et al. 2008). *Caregivers Burden Inventory* (CBI) consists of 24 items on 0–4 Likert scale; total scores were calculated in a range from 0 to 96 (Novak & Guest 1989).

Table 1 Socio-demographic characteristics of believers ($n=31$) and non-believers' ($n=20$) groups

	Believers	Non-believers	*p* value
Caregivers	31	20	
Women	24 (77.4%)	11 (55%)	0.12
Men	7 (22.6%)	9 (45%)	
Relationship to patient			
Parents	4 (12.9%)	3 (15%)	
Married	22 (71%)	4 (20%)	
Sons	5 (16.1)	10 (50%)	
Brothers	0	1 (5%)	
Nephew	0	2 (10%)	
Age (Mean ± SD)	52.94 ± 10.92	46.95 ± 16.50	0.14
Education (Mean ± SD)	10.90 ± 3.67	12.75 ± 3.42	0.08

SD standard deviation

Statistical Analysis

Continuous variables were expressed as mean ± SD, whereas categorical variables were expressed in frequencies and percentages. A nonparametric analysis was carried out because the results of the Shapiro normality test indicated that most of the target variables were not normally distributed. The numerical data are presented in median, and first–third quartile in no-normal distribution. The Fisher's exact test and the Mann–Whitney U test were used for inter-group analysis, when appropriate. For intra-group analysis, correlations between variables were computed by Spearman's coefficient. We performed a multiple regression analysis on the CBI and BDI-II scores (dependent variables). At first, we focused on the influence of demographic and clinical variables, by using patient's age and COPE subscale scores as predictors. We applied a backward elimination stepwise procedure for the choice of the best predictive variables according to the Akaike information criterion (AIC). Analyses were performed using an open-source R3.0 software package. A 95% confidence level was set with a 5% alpha error. Statistical significance was set at $p < 0.05$.

Results

Inter-Group Analysis

The groups showed similar characteristics; no significant differences emerged in caregiver's gender; and no significant associations between degree of kinship and caregiver's gender ($p > 0.05$) were found (Table 1). Mann–Whitney U test showed significant differences in COPE scores, in particular in SS ($p = 0.01$), PA ($p = 0.004$), PS ($p = 0.003$) and TR ($p < 0.001$), but no significant difference in AS ($p = 0.41$). No significant difference in CBI and BDI-II scores ($p > 0.05$) was found (Table 2).

Intra-Group Analysis

In the believers' group, we found many significant positive correlations between CBI scores and AS ($r = 0.47$; $p = 0.007$), BDI-II score and AS ($r = 0.47$; $p = 0.007$) and a negative correlation trend between BDI-II score and age ($r = -0.34$; $p = 0.06$). In the group of non-believers, a positive correlation between CBI and AS (r0.47; $p = 0.04$) was highlighted. In Fig. 1, we showed a significant correlation (Table 3).

Multiple Regression Analysis

Table 2 shows that the clinical condition of the believers' group has a significant impact on CBI scores Age and AS were significant predictors on CBI; moreover, AS

Table 2 Inter-group analysis of caregiver's clinical outcomes

	Believers Median (I–III quartile)	Non-believers Median (I–III quartile)	*p* value U-Mann Whitney
CBI	35.0 (28.5–39.5)	29.0 (26.5–37.5)	0.60
BDI-II	12.0 (8.5–14.5)	8.0 (6.0–13.5)	0.22
COPE subscale			
SS	30.0 (27.0–35.5)	24.5 (23.0–31.2)	0.01
AS	21.0 (20.0–24.0)	20.0 (18.0–24.0)	0.41
PA	34.0 (31.5–38.0)	30.5 (26.7–34.2)	0.004
PS	31.0 (29.0–35.0)	28.5 (24.7–30.2)	0.003
TR	32.0 (29.5–32.0)	22.5 (20.0–24.0)	<0.001

CBI Caregiver Burden Inventory, *BDI-II* Beck Depression Inventory, *COPE* the Coping Orientations to Problem Experiences, *SS* social support, *AS* avoidance strategies, *PA* positive attitude, *PS* problem-solving

was a significant predictor for BDI. In the group of non-believers, PA and PS were the predictors on BDI-II score (Table 2).

Discussion

The caregiver of a patient with severe ABI may show significant emotional and physical burden (Blake 2008; Corallo et al. 2015; Qadeer et al. 2017; Giovannetti et al. 2013). Our findings showed that burden and depression scores are different between believer and non-believer groups. In particular, believers group showed the higher scores than non-believers group in all administered tests.

According to literature studies, religious coping was adopted by caregiver as a positive form of coping strategy (Corallo et al. 2018). Our study demonstrates how religious coping can influence the burden of caregivers. In fact, participants with religious belief used avoidance strategies (AS) more frequently than non-believers group that used frequently positive attitude and problem-solving. In particular, they have the capacity to plan the best solution for patient, especially in the context of discharge from hospital and returning at home (request for aids and assistance, information about a possible hospital relocation such as rehabilitative unit).

Our results are in disagreement with another study that, instead, highlighted that religion and spirituality correlate with active coping strategies. However, participants with lower religion belief showed a positive correlation with avoidance (Krägeloh et al. 2012).

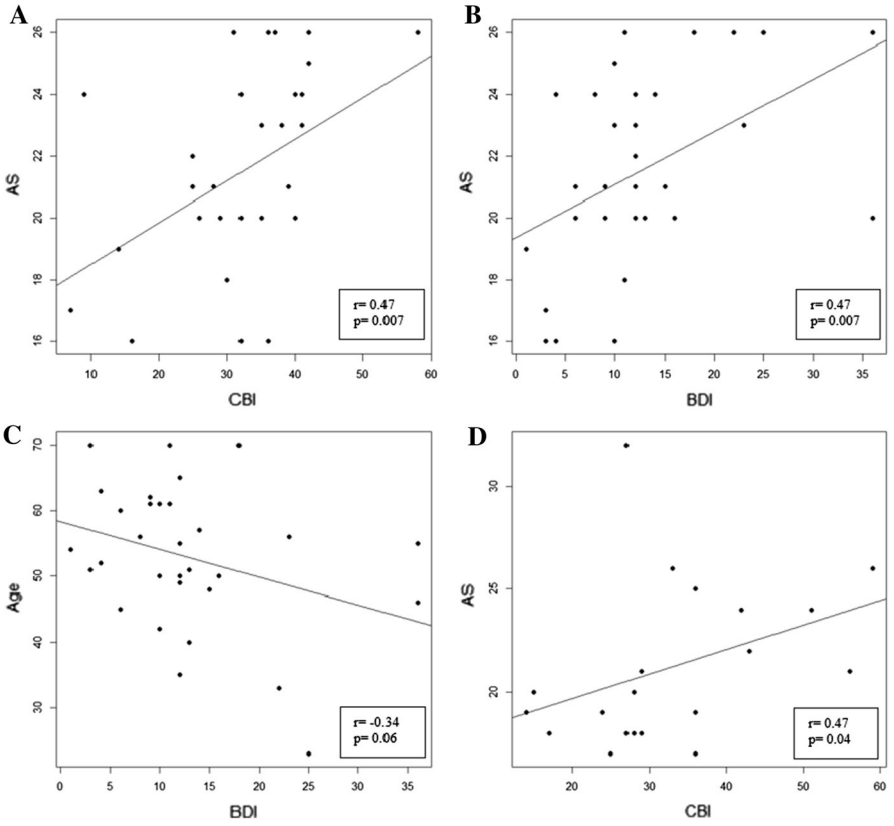

Fig. 1 Correlation between clinical score and demographic and COPE subscore. **a** Scatter plot of CBI score and AS in believers' group. **b** Scatter plot of BDI-II score and AS in believers' group. **c** Scatter plot of BDI-II score and age in believers' group. **d** Scatter plot of CBI score and AS in non-believers' group. *CBI* Caregiver Burden Inventory, *BDI-II* Beck Depression Inventory, *SS* social support, *AS* avoidance strategies *PA* positive attitude, *TR* turning of religion

Table 3 Backward linear regression: significant predictors on each subscale of COPE

Group	Dependent variables	Predictors	β	Std β	*p* value	Adjusted R^2
Believers	CBI	Age	−0.39	−0.4	0.04	0.18
		AS	0.12	0.44	0.06	
	BDI	AS	1.14	0.42	0.05	0.21
Non-believers	CBI	PA	−0.86	−0.68	0.04	0.20
		PS	1.01	0.82	0.82	

B regression coefficient, *Std β* standardized regression coefficient, *CBI* Caregiver Burden Inventory, *BDI-II* Beck Depression Inventory, *AS* avoidance strategies, *PA* positive attitude, *PS* problem-solving

Religion influences the coping process through the reinterpretation of negative events (Corallo et al. 2018), that reformulated as a part of spiritual plan acquiring an acceptable positive meaning (Pargament 2001). This process could give back to caregiver a reinterpretation of the clinical status of the patient, not understanding the degree of disability and the assistance that the patient needs after hospitalization (Moretta et al. 2017).

Deficit of awareness about clinical condition of patients influences the caregiver's judgment on quality of life, disability and needs of patients (Formisano et al. 2017; Silvestro et al. 2017; Bivona et al. 2014). Believers seem to use avoidance strategies probably for lack of awareness about the patient's disease and their disability degree.

This study showed how cultural factors could influence the choice of coping strategies.

For future direction, we want to improve adaptive coping strategies to upgrade the awareness of caregiver towards the patient's condition, supporting burden and distress. It may be useful to provide appropriate information about expectations of functional and cognitive recovery. Thus, caregiver may develop an appropriate healthcare plan (Guevara et al. 2016; Nabors et al. 2002). According to this evidence, a problem-solving training might decrease depressive symptoms and improve the quality of life in terms of social and psychological wellness (Rivera et al. 2008; Giovannetti et al. 2015).

Results obtained from this study could suggest the importance of personal resources in terms of individual adaptation. Future direction might be focused in the individualization of these characteristics to promote an early intervention on pathological risk factors for caregivers of patients with severe pathologies like this.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

References

Avesani, R., Dambruoso, F., Scandola, M., Formisano, R., De, A. T., Ferro, S., et al. (2018). Epidemiological and clinical characteristics of 492 patients in a vegetative state in 29 Italian rehabilitation units. What about outcome? *Functional Neurology, 33*(2), 97–103.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). Beck depression inventory-II. *San Antonio, 78*(2), 490–498.

Bivona, U., Riccio, A., Ciurli, P., Carlesimo, G. A., Delle Donne, V., Pizzonia, E., et al. (2014). Low self-awareness of individuals with severe traumatic brain injury can lead to reduced ability to take another person's perspective. *The Journal of Head Trauma Rehabilitation, 29*(2), 157–171.

Blake, H. (2008). Caregiver stress in traumatic brain injury. *International Journal of Therapy and Rehabilitation, 15*(6), 263–271.

Chadda, R. K., Singh, T. B., & Ganguly, K. K. (2007). Caregiver burden and coping. *Social Psychiatry and Psychiatric Epidemiology, 42*(11), 923–930.

Ciurli, P., Formisano, R., Bivona, U., Cantagallo, A., & Angelelli, P. (2011). Neuropsychiatric disorders in persons with severe traumatic brain injury: prevalence, phenomenology, and relationship with demographic, clinical, and functional features. *The Journal of Head Trauma Rehabilitation, 26*(2), 116–126.

Corallo, F., Bonanno, L., Buono, V. L., De Salvo, S., Rifici, C., Bramanti, A., et al. (2018). Coping strategies in caregivers of disorders of consciousness patients. *Neurological Sciences, 39,* 1–7.

Corallo, F., Bonanno, L., Lo Buono, V., De Salvo, S., Rifici, C., Bramanti, P., et al. (2015). Psychological distress of family members of vegetative and minimally conscious state patients. *Acta Medica Mediterranea, 31*(2), 297–302.

Covelli, V., Sattin, D., Giovannetti, A. M., Scaratti, C., Willems, M., & Leonardi, M. (2016). Caregiver's burden in disorders of consciousness: A longitudinal study. *Acta Neurologica Scandinavica, 134*(5), 352–359.

de la Morena, M. E., & Cruzado, J. A. (2013). Caregivers of patients with disorders of consciousness: Coping and prolonged grief. *Acta Neurologica Scandinavica, 127*(6), 413–418.

Fianco, A., Sartori, R. D., Negri, L., Lorini, S., Valle, G., & Delle Fave, A. (2015). The relationship between burden and well-being among caregivers of Italian people diagnosed with severe neuromotor and cognitive disorders. *Research in Developmental Disabilities, 39,* 43–54.

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology, 55,* 745–774.

Formisano, R., Longo, E., Azicnuda, E., Silvestro, D., D'Ippolito, M., Truelle, J. L., et al. (2017). Quality of life in persons after traumatic brain injury as self-perceived and as perceived by the caregivers. *Neurological Sciences, 38*(2), 279–286.

Giovannetti, A. M., Covelli, V., Sattin, D., & Leonardi, M. (2015). Caregivers of patients with disorder of consciousness: Burden, quality of life and social support. *Acta Neurologica Scandinavica, 132*(4), 259–269.

Giovannetti, A. M., Leonardi, M., Pagani, M., Sattin, D., & Raggi, A. (2013). Burden of caregivers of patients in Vegetative State and Minimally Conscious State. *Acta Neurologica Scandinavica, 127*(1), 10–18.

Guevara, A. B., Demonet, J. F., Polejaeva, E., Knutson, K. M., Wassermann, E. M., Grafman, J., et al. (2016). Association between traumatic brain injury-related brain lesions and long-term caregiver burden. *The Journal of head trauma rehabilitation, 31*(2), E48.

Krägeloh, C. U., Chai, P. P. M., Shepherd, D., & Billington, R. (2012). How religious coping is used relative to other coping strategies depends on the individual's level of religiosity and spirituality. *Journal of Religion and Health, 51*(4), 1137–1151.

Lazarus, R., & Folkman, S. (1984). *Stress, appraisal and coping*. New York: Springer.

Moretta, P., Estraneo, A., De Lucia, L., Cardinale, V., Loreto, V., & Trojano, L. (2014). A study of the psychological distress in family caregivers of patients with prolonged disorders of consciousness during in-hospital rehabilitation. *Clinical Rehabilitation, 28*(7), 717–725.

Moretta, P., Trojano, L., Masotta, O., Cardinale, V., Loreto, V., & Estraneo, A. (2017). Family caregivers' opinions about interaction with the environment in consciousness disorders. *Rehabilitation Psychology, 62*(2), 208.

Nabors, N., Seacat, J., & Rosenthal, M. (2002). Predictors of caregiver burden following traumatic brain injury. *Brain Injury, 16*(12), 1039–1050.

Novak, M., & Guest, C. (1989). Application of a multidimensional caregiver burden inventory. *The Gerontologist, 29*(6), 798–803.

Pagani, M., Giovannetti, A. M., Covelli, V., Sattin, D., & Leonardi, M. (2014a). Caregiving for patients in vegetative and minimally conscious states: perceived burden as a mediator in caregivers' expression of needs and symptoms of depression and anxiety. *Journal of Clinical Psychology in Medical Settings, 21*(3), 214–222.

Pagani, M., Giovannetti, A. M., Covelli, V., Sattin, D., Raggi, A., & Leonardi, M. (2014b). Physical and mental health, anxiety and depressive symptoms in caregivers of patients in vegetative state and minimally conscious state. *Clinical Psychology & Psychotherapy, 21*(5), 420–426.

Pargament, K. I. (2001). *The psychology of religion and coping: Theory, research, practice*. New York: Guilford Press.

Pearce, M. J., Medoff, D., Lawrence, R. E., & Dixon, L. (2016). Religious coping among adults caring for family members with serious mental illness. *Community Mental Health Journal, 52*(2), 194–202.

Qadeer, A., Khalid, U., Amin, M., Murtaza, S., Khaliq, M. F., & Shoaib, M. (2017). Caregiver's burden of the patients with traumatic brain injury. *Cureus*, *9*(8), e1590.

Rabinowitz, Y. G., Mausbach, B. T., Atkinson, P. J., & Gallagher-Thompson, D. (2009). The relationship between religiosity and health behaviors in female caregivers of older adults with dementia. *Aging and Mental Health, 13*(6), 788–798.

Rivera, P. A., Elliott, T. R., Berry, J. W., & Grant, J. S. (2008). Problem-solving training for family caregivers of persons with traumatic brain injuries: A randomized controlled trial. *Archives of Physical Medicine and Rehabilitation, 89*(5), 931–941.

Sica, C., Magni, C., Ghisi, M., Altoè, G., Sighinolfi, C., Chiri, L. R., et al. (2008). Coping Orientation to Problems Experienced-Nuova Versione Italiana (COPE-NVI): uno strumento per la misura degli stili di coping. *Psicoterapia Cognitiva e Comportamentale, 14*(1), 27.

Silvestro, D., Mazzetti, M., Melia, C., Stagno, M. T., Carlesimo, G. A., Bivona, U., et al. (2017). Educational action in the rehabilitation of severe acquired brain injuries: the role of self-awareness. *Annali dell'Istituto Superiore di Sanità, 53*(1), 82–85.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.