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Self-regulation, depression and grief in family caregivers supporting relatives with dementia attending day care homes

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Abstract

Introduction: Our study focused on the functioning of family caregivers of individuals with dementia attending day care centres. The main aims of the study were: (1) to compare self-regulation and depressive symptoms in caregivers of relatives with dementia and individuals who are not caregivers; (2) to evaluate the impact of self-regulation on depressive symptoms and grief in caregivers of relatives with dementia; (3) to estimate relationships between self-regulation, depressive symptoms, caregiver grief and support provided to individuals with dementia.

Material and methods: The sample consisted of 30 family caregivers of persons with dementia attending day care centres and controls who were not caregivers (n = 32). The Depression Assessment Questionnaire (DAQ), MM Caregiver Grief Inventory (MM-CGI-50), and some subscales from Berlin Social Support Scales (BSSS) were administered.

Results: Family caregivers obtained significantly higher scores than controls in global index of DAQ and in some depression dimensions. The regression analysis showed that caregiving redounded to higher intensity of thoughts about death, pessimism, and alienation, guilt and anxiety. The moderating effect of caregiving on the relationship between self-regulation and depressive symptoms such as cognitive deficits and energy loss was found. There were significant correlations between self-regulation and emotional, informative and buffer-protective support.

Conclusions: Caregiving for a relative with dementia, even when the regular external assistance is received, poses a risk of impairing emotional functioning. Self-regulatory capacity of the caregiver appears the relevant factor both buffering against depressive symptoms and increasing the readiness to provide different types of support for care recipients with dementia.

Keywords: depressive symptoms, caregiving, internal resources

Streszczenie

Wstęp: Prezentowane badania koncentrują się na funkcjonowaniu rodzinnych opiekunów osób z demencją korzystających z dziennych domów pomocy. Głównymi celami pracy było: (1) porównanie samoregulacji i objawów depresji u rodzinnych opiekunów osób z demencją oraz osób niesprawujących opieki nad osoba chorą; (2) oszacowanie wpływu samoregulacji na objawy depresji i poczucie straty u opiekunów osób z demencją; (3) ocena zależności między samoregulacją, objawami depresji, poczuciem straty u opiekunów oraz wsparciem udzielanym przez nich podopiecznym z demencją.

Metoda: Przebadano 30 opiekunów osób z diagnozą demencji korzystających z dziennych domów pomocy oraz 32 osoby niesprawujące opieki nad osobą chorą. W badaniach zastosowano Kwestionariusz do Pomiaru Depresji, Kwestionariusz Poczucia Straty Opiekunów oraz wybrane podskale z Berlińskiej Skali Wsparcia Społecznego.

Wyniki: Rodzinni opiekunowie uzyskali istotnie wyższy wynik niż grupa kontrolna w zakresie ogólnej depresyjności oraz niektórych jej wymiarów. Analiza regresji wykazała, ze sprawowanie opieki istotnie nasila myślenie o śmierci, pesymizm i alienację, a także poczucie winy i napięcie lękowe. Ujawniono moderujący efekt sprawowania opieki dla relacji między samoregulacją a niektórymi objawami depresyjnymi, takimi jak deficyty poznawcze i utrata energii. Stwierdzono występowanie istotnych korelacji między samoregulacją a wsparciem emocjonalnym, informacyjnym i buforująco-ochronnym.

Wnioski: Sprawowanie opieki nad osobą bliską z demencją, nawet w sytuacji korzystania z dziennych domów pomocy stanowi ryzyko pojawienia się u opiekunów problemów emocjonalnych o charakterze depresyjnym. Możliwości opiekunów w zakresie samoregulacji okazują się być istotnym czynnikiem zarówno chroniącym przed ujawnieniem się symptomów depresyjnych jak i zwiększającym gotowość do udzielania bliskim z demencją różnych typów wsparcia.

Słowa kluczowe: objawy depresji, sprawowanie opieki, zasoby wewnętrzne

1. Introduction

Care for individuals experiencing dementia provided by relatives carries multiple burdens: financial, psychological and biological. The effort put into the care can lead to negative consequences for the health and mental functioning of carers, the most commonly mentioned being chronic stress and depressive symptoms [1-4]. The relationship between caring for a person with dementia and carers' depressive symptoms is supported by a number of studies [5,2,6-9]. A meta-analysis reveals depression in one in three caregivers of relatives with dementia [5,3]. Some studies have reported an episode of major depression in more than 50% of caregivers [10,11,3]. Carers showing signs of depression may manifest reduced decision-making capacities [12]. Gonyea et al. [13] found that low self-efficacy and increased depressive symptoms exacerbate the caregivers' burden. High level of burden co-occurring with depression and increased anxiety in carers of relatives with dementia were reported by Mausbach [14]. Heavy caregivers' burden in various domains appears to be associated with weak motivation for caregiving [15,16]. Many studies revealed increased sense of grief experienced by caregivers [17,18,3,19]. Meuser et al. [20] considered how caregivers' grief, as a response to individual loss, is related to symptoms of stress, depression and burden. Emotional responses to difficult situations during the care process are varied and the ways in which they are expressed depend on a wide range of individual, social and cultural factors [21,22]. Objective care-related stressors, such as the depth of the patient's cognitive deficits [11], behavioural problems in implementation of daily activities, general inefficiency in performance [23-25] contribute to the emotional well-being of caring family members. In addition to factors related to the person experiencing dementia, a number of psychological variables affect the carer's coping with challenges and their risk of revealing disturbances in psychosocial functioning. These include the carer's perception of care situations, development of coping skills, sense of agency [26-29], and obtaining support from the environment [30].

Some available internal and external resources can serve as a buffer for caregivers' emotional stability [31,22,32-34,3,35]. One of the factors protecting the carer from health or mental problems may be the capacity for self-regulation, defined in terms of the individual's emotional and cognitive resources. These are understood as the readiness to take action, overcome difficulties, cope actively, seek solutions, maintain goal-oriented activities, and the ability to think in positive terms (optimism, not giving up) [36]. The subjective perception of affective and cognitive aspects of caregiving and the attempt to give them individual meaning, Lawton et al. [37] defined as caregivers' appraisal. It contains caregiving satisfaction, impact, mastery, ideology and burden. The carers may perceive caregiving in negative, positive or neutral way and their appraisal affects not only themselves but also care recipients. Caregivers with a positive approach strive to plan their care tasks and try to avoid conflict situations [38,32]. Due to the disruptions and changes in life habits caused by caregiving, they often experience greater grief, anxiety and stress [3]. Considered in a broader socio-cultural context, the complex relationship between burden and protective factors influences both the carer and the care recipient, inducing various types of support provided to care recipients, including emotional, instrumental or informational support [39-42].

The external resources cover social formal forms of assistance for carers provided by day homes for individuals with dementia. From the carer's perspective, these institutions give an opportunity for partial relief (reprieve from caring), time for other activities that are important to the carer but impossible to do when the person being cared for is around. Day care homes facilitate contact with other carers and with staff who can provide information on the nature of the illness and the specifics of caring [43,44]. Few studies have investigated the impact of the institutional form of care on the cognitive and emotional functioning of family caregivers of individuals with dementia. Existing reports suggest a positive role of day care homes in reducing carer burnout and helping carers cope with the challenges of caregiving [44-46], although there are also studies suggesting no positive impact on the carer [47,48]. Previous results have also shown a reduction in depressive symptoms in carers when a person with dementia attended a day home [49,45,3], however, other studies have found no significant impact on the mental health of carers [50].

Due to the social importance of family care, our study focused on the functioning of family carers of individuals with dementia attending a day care home as an institutional form of assistance. The main aims of the work were: (1) to compare self-regulation and depressive symptoms in caregivers of relatives with dementia attending day care homes and individuals who are not caregivers; (2) to evaluate the impact of self-regulation on various depressive symptoms and grief in caregivers of relatives with dementia; (3) to estimate the relationships between self-regulation, depressive symptoms, caregiver grief, and types of support provided to individuals with dementia.

2. Method

2.1. Participants

The sample consisted of a total of 62 participants including 30 family caregivers of persons with dementia (FCg). The control group (C) consisted of 32 persons who were not caregivers and in their close family there were no relatives with chronic illness demanding assisting. Three persons from the FCg group were excluded from the further stages of this study because of incomplete data. None of the participants had a history of neurological or psychiatric disorders. There were no significant differences in demography (age and education level) between FCg and C groups (Table 1). In the sample 81% of the caregivers and 75% of the controls were women. Total duration of care was M = 6.6 (SD = 4.2) and it ranged from 3 to 20 years. The care recipients' age ranged from 62 to 95 (M = 78.19; SD = 8.20) and 70% of them required round-the-clock care, 30% needed assistance to perform some of everyday routine. All of the individuals with dementia attended day care centres where they spent 8 hours every day participating in a programme of activities geared to their individual needs and abilities (everyday life activities, outings, cognitive training, social activation, occupational and other rehabilitation therapy).

Table 1. Comparison of depressive symptoms, self-regulation and demographic factors between family caregivers of individuals with dementia (FCg) and controls (C)

	FCg (n = 27)	C (n = 32)	t	*p*	Cohen's d
	M/SD	M/SD			
DAQ GS	111.00/22.45	101.78/15.92	1.813	.038	.484
DAQ CDEL	35.96/6.83	33.69/5.53	1.388	.085	.371
DAQ TDPA	24.00/6.14	20.94/4.12	2.249	.014	.600
DAQ GA	31.40/7.26	28.13/5.30	1.969	.027	.526
DAQ PSLI	19.64/5.04	19.03/3.99	.509	.306	.136
DAQ SR	40.64/7.00	40.56/6.61	.043	.483	.011
age	54.89/12.20	55.97/11.93	-.343	.366	-.090
education	13.78/2.58	12.91/2.59	1.289	.101	.337

Depression Assessment Questionnaire (DAQ): GS - Global score; CDEL - Cognitive deficits and energy loss; TDPA - Thoughts about death, pessimism, and alienation; GA - Guilt and anxiety; PSLI -Psychosomatic symptoms and loss of interests; SR - Self-regulation

2.2. Methods

The Depression Assessment Questionnaire (DAQ, Polish version by Łojek et al. [36], was used to measure depressive symptoms in the following dimensions: cognitive deficits and energy loss (CDEL), thoughts about death, pessimism, and alienation (TDPA), guilt and anxiety (GA), psychosomatic symptoms and loss of interests (PSLI). In addition to depressive symptoms also self-regulation (SR) was measured. Totally the questionnaire consists of 75 items and each of them was rated on a 4-point scale. The DAQ global score (GS) reliability is very high (0.95 to 0.97). Most of the DAQ scales have high or very high reliability and Cronbach's alpha ratios range from 0.70 to 0.97 [36].

The MM Caregiver Grief Inventory (MM-CGI-50) by Marwit and Meuser [51] was administered with authors' consent to assess grief response of family caregivers of persons with dementia. It is the 50-item self-report scale. The MM-CGI is composed of three subscales: personal sacrifice burden (MMCGIa), i.e. what "I" (as the caregiver) have had to give up in my life; heartfelt sadness and longing (MMCGIb), including sadness and regretting life as it was before; worry and isolation (MMCGIccr) referring to uncertainty of how things will turn out coupled with isolation from others. The total grief score (MMCGI total) defines the intensity of negative emotions connected with caregiving. The higher score indicates the more intensive grief. According to Meuser and Marwit [52], high scores suggest a need for support to enhance coping and low scores may be indicative of adaptive coping or denial of grief-related issues. Response possibilities are on a five-point Likert-type scale (from 1 point - *don't agree* to 5 points – *totally agree*). The MM-CGI-50 [51,52] has the reliability of 0.93 (Cronbach's alpha).

The Provided Social Support and Buffering Protective Scales from Berlin Social Support Scales (Die Berliner Social Support Skalen; BSSS by Schwarzer and Schultz) in Polish adaptation by Łuszczyńska et al. [53] were completed by family caregivers to assess some dimensions of currently provided support to individuals with dementia. The Provided Social Support Scale allows to assess emotional (BSSSemo), informational (BSSSinf), and instrumental (BSSSinstr) support and Buffering Protestive Scale evaluates buffer and protective support

(BSSSbuf-prot). The total number of items is 20 and the answering format is the same for all subscales: participants indicate their agreement with the statements on a four-point Likert-type scale. Possible responses are from 1 - *strongly disagree* to 4 - *strongly agree*. The higher the score, the more social support is declared. The value of Cronbach's alpha internal compatibility factor was 0.80 [54].

All questionnaires were completed individually by participants within one or two meetings.

Statistical analysis

IBM SPSS version 29.0 was used to conduct the data analyses. A parametric t test was used to investigate differences in DAQ indices between caregivers and controls. The effect size for the t test (Cohen's d) was also calculated. The moderation effect was analyzed using Model 1 within the SPSS PROCESS macro developed by Hayes [55]. The outcome variables for analysis were depressive dimensions. The predictor variable was Self-regulation, while Caregiving served as a categorical moderator in the model. The bootstrapping method in process macro with 5000 samples of the data was used to test the robustness of the significant moderating effects and their corresponding confidence intervals (CIs). A 95% CI did not contain zero indicating a significant effect [55]. Simple slopes analysis was conducted on the moderating effects to detect relationships between self-regulation and depressive symptoms in categories of moderating variable. To identify the correlations between self-regulation, depressive symptoms, caregiver grief and support provided by family caregivers to individuals with dementia, the Spearman's correlation (*rho*) was applied. Statistical significance was set at 0.05 for all analyses.

Results

Self-regulation and depressive symptoms in family caregivers of individuals with dementia vs. controls

The independent t-test showed that the FCg and C groups did not differ in the range of Self-regulation (Table 1). In the FCg group the diversity of Self-regulation was observed (Figure 1). The similar number of participants obtained low (33% of caregivers), average (29%) and high (38%) scores in the Self-regulation. Referring to depressive symptoms, the FCg group had significantly higher scores in DAQ GS than controls (Table 1). Significant differences between family caregivers and controls were observed for: Thoughts about death, pessimism and alienation and Guilt and anxiety. The FCg group obtained higher scores in these dimensions of DAQ than the C group. The effect sizes (Cohen's d) for the t-test comparisons were medium. There were no statistical differences between FCg and C groups in the other dimensions of DAQ (Table 1). Among family caregivers almost 46% revealed elevated DAQ GS (between 7 and 10 sten; Figure 1). The high scores were the most frequently obtained by caregivers (about 42%) in the DAQ TDPA dimension in comparison to other scales of DAQ. In DAQ CDEL, GA, and PSLI the highest scores were revealed by about 38%, 33%, 29% of caregivers respectively.

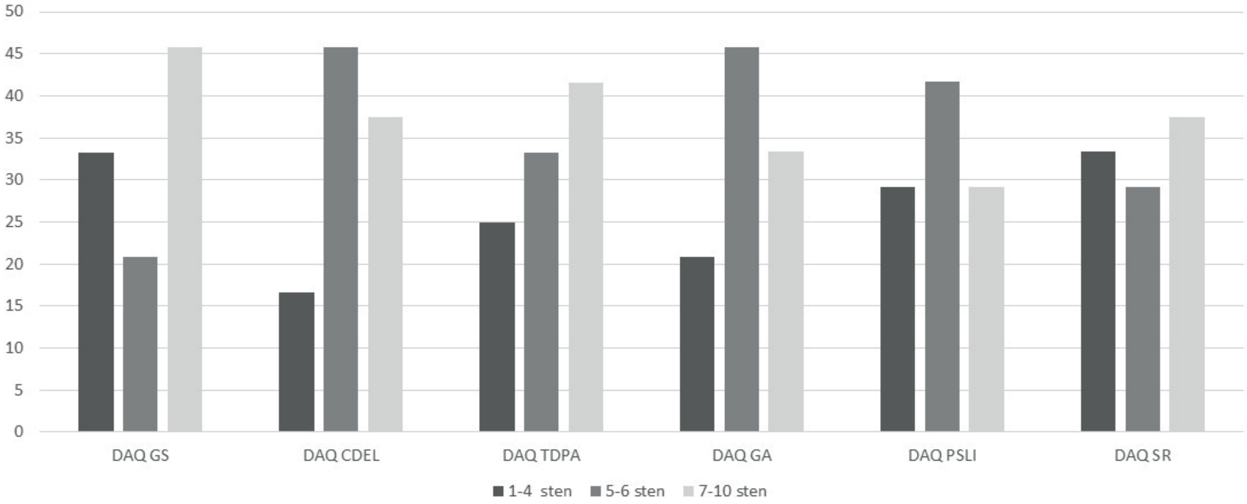

Figure 1. The outcome of Depression Assessment Questionnaire (DAQ) among family caregivers
Depression Assessment Questionnaire (DAQ): GS - Global score; CDEL - Cognitive deficits and energy loss; TDPA - Thoughts about death, pessimism, and alienation; GA - Guilt and anxiety; PSLI - Psychosomatic symptoms and loss of interests; SR - Self-regulation

The regression analysis showed that Self-regulation had a positive influence on the DAQ GS and DAQ TDPA. Table 2 includes the data of the regression model with moderation, Model 1 in Hayes [55]. It was also found that Caregiving redounded to higher intensity of the following depressive symptoms: DAQ TDPA and DAQ GA. However, the interaction effects of Self-regulation and Caregiving on DAQ TDPA and DAQ GA were not observed (Table 2). Additionally, in the FCg group significant relationships were observed between DAQ SR and MMCGI total ($r = -.450$, $p < .05$) and MMCGIccr ($r = -.588$, $p < .05$).

The moderating effect of Caregiving on the

Table 2. Moderating effects of Caregiving on the relationship between self-regulation and dimensions of depression

	b	SE	t	p	95% CI
DAQ GS as outcome result					
DAQ SR	-.755	.361	-2.091	.041*	-1.479; -.031
Caregiving	-9.289	4.839	-1.919	.060	-18.996; .418
Interaction DAQ SR x Caregiving	1.236	.723	1.710	.093	1.214; 2.685
R^2 = .18, MSE = 328.71, F (3,53) = 3.773, p = .015*; Interaction DAQ SR x Caregiving: R^2_{change} = .045; F = 2.923, p = .093					
DAQ CDEL as outcome result					
DAQ SR	-.159	.117	-1.358	.180	-.394; .076
Caregiving	-2.290	1.571	-1.458	.151	-5.440; .861
Interaction DAQ SR x Caregiving	.500	.235	2.133	.038*	.030; .971
R^2 = .14, MSE = 34.63, F (3,53) = 2.937, p = .042*; Interaction DAQ SR x Caregiving: R^2_{change} = .074; F = 4.549, p = .038*					
DAQ TDPA as outcome result					
DAQ SR	-.253	.094	-2.691	.009**	-.441; -.064
Caregiving	-3.085	1.260	-2.450	.018*	-5.612; -.560
Interaction DAQ SR x Caregiving	.353	.188	1.875	.066	-.025; .730
R^2 = .25, MSE = 22.263, F (3,53) = 5.743, p = .002**; Interaction DAQ SR x Caregiving: R^2_{change} = .050; F = 3.515, p = .066					
DAQ GA as outcome result					
DAQ SR	-.218	.121	-1.798	.078	-.461; .025
Caregiving	-3.294	1.626	-2.026	.048*	-6.555; -.034
Interaction DAQ SR x Caregiving	.258	.243	1.061	.294	-.229; .745
R^2 = .14, MSE = 37.093, F (3,53) = 2.877, p = .045*; Interaction DAQ SR x Caregiving: R^2_{change} = .018; F = 1.126, p = .294					
DAQ PSLI as outcome result					
DAQ SR	-.125	.089	-1.407	.165	-.303; .053
Caregiving	-.620	1.189	-.521	.604	-3.004; 1.785
Interaction DAQ SR x Caregiving	.125	.178	.705	.484	-.231; .481
R^2 = .05, MSE = 19.838, F (3,53) = .949, p = .424; Interaction DAQ SR x Caregiving: R^2_{change} = .009; F = .497, p = .484					

Depression Assessment Questionnaire (DAQ): GS - Global score; CDEL - Cognitive deficits and energy loss; TDPA - Thoughts about death, pessimism, and alienation; GA - Guilt and Anxiety; PSLI -Psychosomatic symptoms and loss of interests; SR - Self-regulation

relationships between self-regulation and the depressive symptoms was confirmed only in one dimension of depression. There was no significant impact of Self-regulation (b = -.159; p = .18) and Caregiving (b = - 2.290; p = .15) on DAQ CDEL but the interaction effect of Self-regulation and Caregiving on DAQ CDEL was significant (b = .500; p = .038, Figure 2). Bootstrapping analysis also showed significant moderating effect of Caregiving on the relationship between Self-regulation and the depressive dimension Cognitive deficits and energy loss (b = .500; Boot 95%CI = [.030, .971]. Self-regulation, Caregiving and interaction accounted for 14% variance in DAQ CDEL, with 7.4% being contributed by moderating effect (R2change = .074). Next, simple slopes for Self-regulation to DAQ CDEL on different categories (being a family caregiver/not being a caregiver) of the moderator Caregivers were examined. Results showed that Self-regulation significantly predicted DAQ CDEL only for being a family caregiver (b = -.44, t = -2.564, 95%CI = [-.784, -.096]). The prediction was not significant for not being a caregiver. Table 3 shows the simple slopes for categories of the moderator variable.

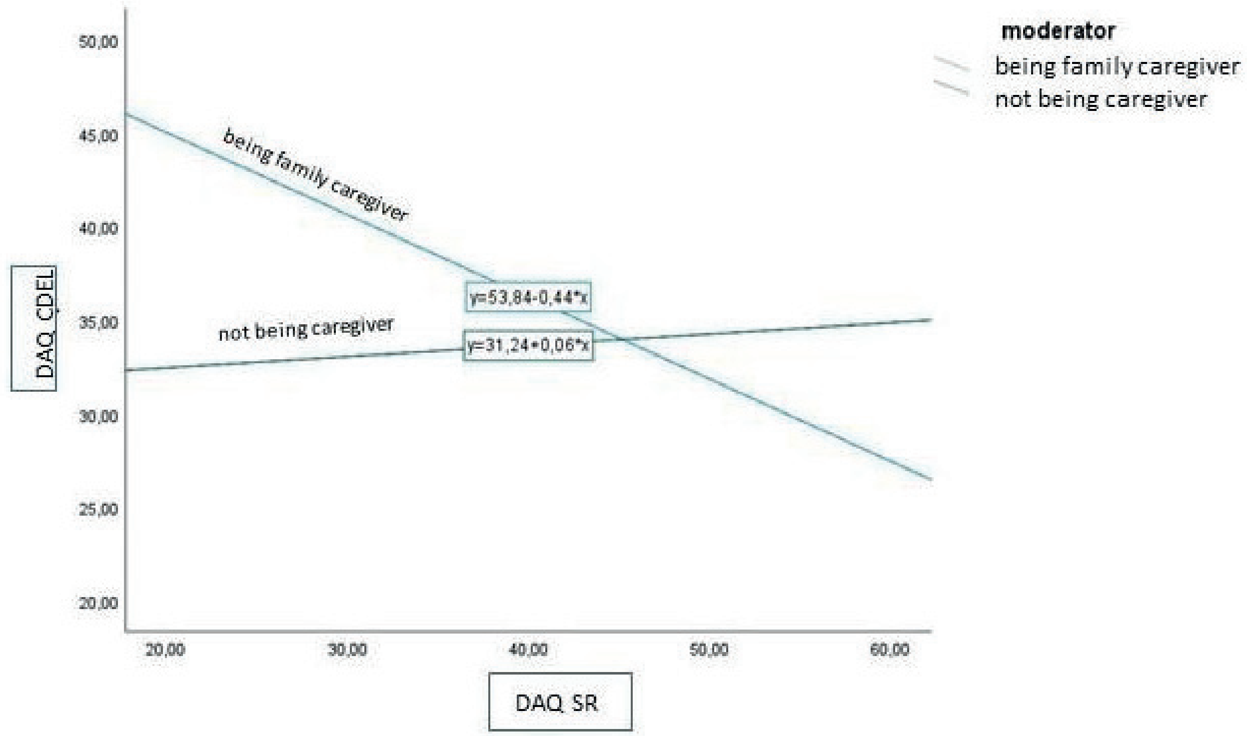

Fig. 2. The interaction effect of DAQ SR and Caregiving on DAQ CDEL
Depression Assessment Questionnaire (DAQ): CDEL - Cognitive deficits and energy loss; SR - Self-regulation

Table 3. The effect of self-regulation on DAQ CDEL in categories of Caregiving

Caregiving categories	effect	SE	t	LLCI	ULCI
being a family caregiver	-.440	.172	-2.564	-.784	-.096
not being a caregiver	.060	.160	.377	-.261	.381

Depression Assessment Questionnaire (DAQ): CDEL - Cognitive deficits and energy loss

Considering the relationships between Self-regulation, depressive symptoms, caregiver grief and support provided to dementia individuals, the rho-Spearman correlation coefficient was calculated for the FCg group (Table 4). There were significant positive correlations between Self-regulation and three types of indices of BSSS: BSSSemo, BSSSinf and BSSSbuf-prot. In the range of depressive symptoms DAQ CDEL and TDPA correlated negatively with BSSSinstr. There were no significant correlations between other scales of DAQ and BSSS scores. The correlation analysis also showed that MMCGI total, MMCGIa and MMCGIccr were significantly and negatively associated with BSSS emo. MMCGI total was negatively related to BSSSinf either (Table 4).

Discussion

The first objective of our study was to compare self-regulation and depressive symptoms in family caregivers of individuals with dementia attending day care homes and individuals who are not caregivers. Our study showed that there are no differences between family caregivers and controls in self-regulation, treated as willingness to take action, overcome difficulties, cope actively, seek solutions, maintain goal-oriented actions, and the ability to think in positive terms. The similar self-regulation in the surveyed groups seems to be related to the special situation of the family caregivers, whose relatives with dementia regularly use a community day care home for 8 hours a day. The opportunity to take a break from caring and devote time to one's own needs and to the fulfilment of other family or work responsibilities, can be a supportive factor for carers to build resources. Some previous findings highlight the positive impact of day care homes on caregivers coping with problems [43,31,46,45,44], but others indicated that the day care homes did not influence caregivers' mental health [47,50,48]. However, it is worth noticing that caregivers in our study individually represented various abilities in the range of self-regulation. Moreover, despite receiving institutional assistance in caring for a relative with dementia, family carers experienced overall higher levels of depressive symptoms than non-caregivers. Our findings indicate that caring for a person with dementia has a substantial impact particularly on the thinking

Table 4. Relationships between self-regulation (DAQ SR), depressive symptoms (DAQ), caregiver grief (MM-CGI-50) and provided support to individuals with dementia by their family carers (BSSS)

variables	BSSSemo	BSSSinstr	BSSSinf	BSSSbuf-prot
DAQ GS	-.275	-.361	-.158	-.069
DAQ CDEL	-.200	-.432*	-.100	.003
DAQ TDPA	-.143	-.530**	.035	-.210
DAQ GA	-.338	-.192	-.245	-.028
DAQ PSLI	-.382	-.367	-.134	-.075
DAQ SR	.509*	.295	.565**	.404*
MMCGItotal	-.610**	-.119	-.419*	-.331
MMCGIa	-.501**	.059	-.259	-.265
MMCGIb	-.367	.105	-.373	-.017
MMCGIccr	-.451*	-.197	-.259	-.145

***p < .01; *p < .05*

MMCGI total – total score; MMCGIa - the personal sacrifice burden; MMCGIb - heartfelt sadness and longing; MMCGIccr - worry and felt isolation. BSSSemo – emotional support; BSSSinstr – instrumental support; BSSSinf: informative support; BSSSbuf-prot: buffer and protective support. Depression Assessment Questionnaire (DAQ): GS - Global score; CDEL - Cognitive deficits and energy loss; TDPA - Thoughts about death, pessimism, and alienation; GA - Guilt and anxiety; PSLI - Psychosomatic symptoms and loss of interests; SR - Self-regulation

about death, the sense of pessimism and alienation, feeling guilty and anxiety strain. Some previous studies confirm that external support has significant impact on reducing distress experienced in connection with caring activities [33,35]. In some research, day care homes for dementia patients are considered as being connected with decreasing depressive symptoms in family carers [49,45,3]. Almost half of the carers participating in the present study revealed heightened intensity of depressive symptoms, therefore this type of support seems to be not sufficient for caregivers. It is worth considering the significance of certain internal resources for emotional well-being of caregivers.

According to the previous studies, individual differences in vulnerabilities and resources could play the exacerbating or buffering role in caregivers' reactivity to stressful situations [22,3]. In view of that diversity of findings, the second aim of the presented work was to evaluate the influence of self-regulation on various depressive symptoms and grief in caregivers of relatives with dementia. Our study revealed that the self-regulation capacity, i.e. a person's emotional and cognitive resources, is protective against experiencing negative emotional states regardless of the caregiving. However, it is worth underlining that for some dimensions of depression, including cognitive deficits and loss of energy, self-regulation appears to have a positive impact only among caregivers. Our findings detailed the character of associations between self-regulation and different dimensions of depressive symptoms. It was also found that the higher the ability to self-regulate was demonstrated by carers, the less intense the sense of loss they experienced. The relationship between self-regulation and worry and narrowing down social interactions is particularly significant. The greater the capacity for self-regulation was shown by the carer, the lower their tendency to worry was and the weaker sense of social isolation they experienced. The relationships identified in the study confirmed the protective role of internal resources against emotional problems of caregivers, what had been signalled and discussed before [34,32,3]. Nevertheless, self-regulation appears to have no direct relevance to experiencing burnout, grief and feelings of sacrifice. It seems that regardless of the level of self-regulation, these feelings are part of a common profile of emotional functioning for carers of relatives with dementia, noted even among those institutionally assisted in caring.

To broaden the explanation of the role of caregiving and self-regulation for depressive symptoms, we assumed that being a family caregiver of an individual with dementia, requiring many changes in earlier lifestyles and dealing with many difficult situations, moderates the relationship between self-regulation and depressive symptoms. The findings showed that a moderating effect was identified only in the case of being a family caregiver, what means that it has a specific contribution to explaining the relations between self-regulation and the intensity of depressively decreased cognitive functioning and loss of energy. Being a caregiver, taking together with low self-regulation, leads to the higher level of symptoms in this depression dimension. It appears that poor self-regulation related to overloading with duties and challenges both emotional and cognitive may exacerbate the sense of cognitive capability and vigorousness even if family caregivers receive the external social assistance in the form of day care homes for their recipients. For this reason, social assistance towards family caregivers appears to be crucial for their long-term functioning as carers and may prevent the risk of early institutional placement [45].

The third objective of our study was to explore the relationships between self-regulation, depressive symptoms, caregiver grief and types of support provided to individuals with dementia. Generally, our study revealed that the carer's emotional and cognitive resources, defined in terms of self-regulatory capacity, are conducive to the provision of instrumental, emotional and buffering-protective support to the relatives who attend day care centres. However, due to the signs of depression and a sense of loss noted in the study group of caregivers, it is worth drawing attention to the relationships between the emotional state of the caregiver and the readiness to provide various types of support. By the extension, the greater the severity of depressive symptoms in terms of cognitive deficits, loss of energy, thoughts of death, pessimism and feelings of alienation, the less instrumental support is provided by carers to their relatives with dementia. The dominance of such sensations as cognitive decline, loss of energy, thoughts of death, and feelings of alienation in the carer's experience negatively affects the ability to provide instrumental support to a relative with dementia. Perceiving the caregiving as contributing to grief, personal sacrifice burden, worry and social isolation is associated with the declaration of weaker emotional support shown by carers to persons with dementia. Increased grief in caregivers primarily reduces the willingness to accompany the care recipient, provide reassurance, reinforce, motivate, express acceptance, sympathise, and devote time to the caregiver. Particularly, an increase in the cognitive symptoms of depression, a sense of loss of energy and alienation in caregivers are associated with a lower readiness to act for the relative with dementia, to help them with their daily duties, to assist them in overcoming their difficulties. Thus, because of the multidimensional links between self-regulation and the emotional state of carers as well as the types of support they provide to their relatives, it is worth considering this factor as an important aspect of internal resources that is relevant to quality of life and coping with the challenges of the caring role [34], also in the situation of their relatives' use of external institutional support in the form of a day care centre [31,45].

Conclusions

Institutional support in the form of day care homes gives family carers relief and may increase their motivation for their role as a caregiver, what may postpone the need for residential care. Caregiving for a relative with dementia, even receiving the regular external assistance, poses a risk of emotional exacerbation, particularly in the range of thinking about death, the sense of pessimism and alienation, feeling guilty and anxiety strain. Self-regulatory capacity of the caregiver appears to be a relevant factor both buffering against depressive symptoms and increasing the readiness to provide different types of support for care recipients with dementia. Self-regulation capacity regarded as the substantial characteristic should be included into psychological analysis of family condition struggling with challenges connected with a family member dementia.

Conflict of interest

The authors have declared no conflict of interest.

Ethical Approval

The authors acknowledge that all human data included in this manuscript was obtained in compliance with regulations of our institutions, and human research was completed in accordance with the guidelines of the Helsinki Declaration. All the participants provided informed written consent individually before participating in this study. The approval for this study was obtained from the Ethics Committee of the affiliation university.

Data Availability

Data and materials for the study reported here are available from the corresponding author on reasonable request.

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