

The Effects of Nursing Interventions on the Level of Anxiety and Care Burden of the Caregivers of Bedridden Patients

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ABSTRACT

Background: Taking care of bedridden patients at home is a very difficult task for caregivers. In this care process, caregivers can be supported with the interventions given by the nurses at home. **Aim:** This study mainly aimed to compare the anxiety and care burden levels of caregivers of bedridden patients at home after nursing interventions which a personal care handbook, regular home visits, and telephone counseling. **Subject and Methods:** To proceed with this study, 51 caregivers have included in this study between January 1 and July 21, 2018. The Barthel Index for Activities of Daily Living (BIADL) was used to measure levels of independence in patient’s activities, State and Trait Anxiety Scale (SAI and TAI) was used to measure the anxiety levels, and Burden Interview (BI) care burden problems of caregivers who participated in the study. Also, Sociodemographic Characteristics Form was used for demographic data of patients and caregivers. **Results:** The analysis of the responses showed the proportions of the caregivers who had lower SAI- TAI and BI scores after taking nursing intervention at home. The state anxiety level of caregivers (pre-test: Mean; 54.06+-7.97; post-test: Mean; 38.43+-6.41) and the trait anxiety level of the caregivers (pre-test: Mean; 51.45+-5.94; post-test: Mean; 41.59+-7.05) and the burden level of caregivers (pre-test: Mean; 75.75+-11.41; post-test: Mean; 57.69+-13.39) was determined. The differences between the pre and post-test mean scores of SAI, TAI, and BI were statistically significant ($P < 0.05$). **Conclusions:** Our study highlights that the burden and anxiety levels of the caregivers had lower post-test levels than the pre-test levels.

KEYWORDS: Anxiety level, bedridden, care burden, caregiver, nurse

INTRODUCTION

In the current health system, home care is common, especially among the elderly and those with chronic diseases, and individuals want to receive home care, increasing the care burden of primary caregivers of bedridden patients.^[1] Bedridden patients are those who stay in bed for a short or long time due to various reasons, including paralysis, cerebrovascular condition, old age, and disability. These individuals need help as they cannot fully meet their personal and medical care needs.^[2] Family caregivers are defined as relatives and friends who provide free care to bedridden patients and play a significant role in home care.^[3-6] In a culture of Türkiye, caregivers of patients in need of home care are usually their children, parents, and close relatives.^[7]


Long-term caregiving negatively affects the health and quality of life of the caregiver.^[8-10] Caregivers may spend less time with their families and friends, experience increased emotional stress, and neglect personal care activities like a good night’s sleep, exercise, and healthy eating.^[4] In our country, home care is not at the desired level. In addition, there is no program for the independent intervention of the nurse at home. So, there are serious problems for caregivers regarding home care.^[11] In Türkiye, those caring for bedridden patients experience difficulties and anxiety

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due to inadequate training on home patient care at the individual level from the hospitals.^[1]

This study aimed to evaluate the effect of nursing interventions which a personal care handbook, regular home visits, and telephone counseling that are conducted on anxiety levels and care burden of the caregivers of bedridden patients.

Hypotheses of this study;

- H1: The nursing interventions which a personal care handbook, regular home visits, and telephone counseling affect on the anxiety level of caregivers of bedridden patients.
- H2: The nursing interventions which a personal care handbook, regular home visits, and telephone counseling affect on care burden level of the caregivers of bedridden patients.
- H3: The socio-demographic characteristics of caregiver's affect care burden level and anxiety level during taking care of bedridden patients.

METHODS

Design

The study with a pre-and post-test intervention design was conducted between January 1 and July 21, 2018. The sample consisted of 51 caregivers of the bedridden patients from the Family Health Center of Trabzon in Türkiye.

Participants

The population consisted of the caregivers of 58 bedridden patients enrolled in 13 Family Health Centers in Trabzon. The power analysis was performed to determine the adequacy of the sample size of the study, and 50 people were found to be adequate. Because they may be separated from the study due to death or volunteering, 8 more than the number determined by power analysis were obtained. The study finished with 51 bedridden patients and their caregivers. No statistically significant relationship was found between the levels of dependency of patients (fully dependent, highly dependent, and moderately dependent) and the scores of BI ($F = 2.361$, $P = 0.105$), SAI ($F = 0.015$, $P = 0.986$), and TAI ($F = 1.478$, $P = 0.238$) ($P > 0.05$). During the study, we showed that all patients were 55 years old or over and the caregivers were determined to be 18 years old and over, adhering to the limitations of the study. In the power analysis, the effect size of the study was found to be 1.45 (large), and the power was 0.99 at a 0.05 significance level and 95% confidence interval. This analysis was performed on care burden pre and post-test data ($n_1:51$, $n_2:51$, $ort 1:75.75 \pm 11.41$, $ort 2:57.69 \pm 13.39$).

Research Criteria

The inclusion criteria for caregivers: being a volunteer to participate in the study, being 18 years old or over, being literate in Turkish, being a primary caregiver during the patient's stay at home, caring for a bedridden patient for 3 months-1 year, and not having hearing and visual impairments. The inclusion criteria for bedridden patients: are being bedridden for 3 months-1 per year, having moderate or above dependency according to the Barthel Index for Activities of Daily Living, and living in the center of Trabzon.

Data collection tools

The Sociodemographic Characteristics Form that was developed based on the literature was used to determine the sociodemographic characteristics of the caretakers and caregivers. The Barthel Index for Activities of Daily Living (BIADL) was applied to determine the level of patient dependence. The State and Trait Anxiety Inventories (SAI and TAI) were applied to reveal the caregivers' anxiety levels and the Burden Interview (BI) was used to determine the caregivers' levels of care burden. A Personal Care Handbook that was developed to address the difficulties that caregivers may face in caregiving was used for caregivers. The personal care handbook was presented to the expert opinion and the final version was created after the expert opinion.

BIADL; Developed by Barthel and Mahoney in 1965,^[12] BIADL is used to determine the individuals' levels of independence in their activities. Its Turkish validity and reliability studies were carried out.^[13] BIADL scores range from 0 to 100 and refer to; 0-20 complete dependence, 21-61 severe dependence, 62-90 moderate dependence, 91-99 mild dependence, and 100 independence.^[13] The Cronbach alpha value of the scale in this study was 0.89.

BI; It was developed by Zarit *et al.* in 1985,^[14] and its Turkish validity and reliability study was conducted in 2006 by İnci and Erdem. It is used to determine the care burden problems of caregivers. BI scores are evaluated as follows; (0-20) low/no burden, (21-40) moderate burden, (41-60) severe burden, and (61-88) excessive burden.^[15] The Cronbach alpha value of the scale in this study was 0.87.

SAI and TAI (STAI FORM TX-I; STAI FORM TX-II); Developed by Spielberger *et al.*^[16] in 1970 to determine the state and trait anxiety level of caregivers, these inventories were adapted to Turkish society by Öner and Le Compte in 1983.^[17] While SAI is highly sensitive to assessing sudden changes in emotive reactions, TAI is a tool to measure the persistence of anxiety that a person usually tends to experience. The scores on both scales

range from 20 (low anxiety) to 80 (high anxiety). In this study, SAI and TAI Cronbach's alpha values were 0.90 and 0.75 respectively.

Prepared by the researchers based on the literature,^[1-12] A *Personal Care Training Handbook* includes nursing diagnoses and nursing interventions for the general problems that caregivers may encounter in providing care. The problems regarding the care of bedridden patients were identified in the nursing diagnoses and interventions book "2015-2017 NANDA Nursing Diagnoses".^[18] This training handbook was given to caregivers during home visits to contribute to the reduction of caregiving difficulties and anxiety levels of caregivers when there is no nurse.

Data collection process and nursing interventions

The pre and post-test, one-group, quasi-experimental study was conducted in 3 phases. All of the data were collected during home visits to the caregivers through face-to-face interviews by the researchers.

In The Data Collection Process;

First Phases:

- Before the first home visit; Depending on limitations all caregivers called the telephone to taking an appointment for a home visit (58 caregivers called)
- The result of this telephone interview; 51 caregivers accepted to join this study. And took an appointment with the researcher

Second Phases:

- *First home visit:* The researcher went to each caregiver's home depending on arranged schedule. During this first visit, the "Sociodemographic Characteristics Form" and the "Barthel Index for Activities of Daily Living" were used for patients, and the "Sociodemographic Characteristics Form", the "Burden Interview" and the "State and Trait Anxiety Scale" were used for caregivers before nursing intervention. After that during this first home visit, and nurse determined the caregivers' burden of care problems and the first home visit finished. Until the second home visit nurse developed personal care handbook for each caregiver. The personal care handbook was developed based on nursing diagnoses (NANDA Nursing Diagnoses) by researchers in line with the literature. Also, researcher arranged a calendar for telephone counseling of caregivers.
- *First telephone counseling:* Talking about caregiver's problems which are determined first home visit.
- *Second home visit:* The nursing interventions were applied to caregivers for the care burden problems by registered nurses who are researchers who depend on developing personal care handbook.

- *Second telephone counseling:* Talking about caregiver's problems which are determined first and second home visits.

- *Third, Fourth, fifth, and sixth home visit, and telephone counseling:* In each week, the researcher followed the same way.

The nursing interventions included 6 home visits for training caregivers with the personal care handbook, and 6 telephone consultations for talking all problems with caregivers. This study was approved at home for caregivers who have bedridden patients. The researcher permits one month for a home visits and face-to-face interview education from the family. So that this program was arranged as a one-week visit and one-week of telephone counseling for each caregiver. In each home visit, caregivers were trained with the personal care handbook and they were supported on the issues they were inadequate in caregiving.

Third Phases:

- *One month after the last training visit;* The SAI and TAI and BI were applied as a post-test of the scales to caregivers to evaluate the effect of nursing interventions. At end of the this home visit, the procedure of the research was explained by the nurses and they left the house. The study was completed with a total of 7 home visits.

Ethical considerations

To carry out the study, institutional permission was obtained from Family Health Units and the Provincial Directorate of Health in Trabzon city center, and the required ethics committee approval dated 09/12/2015 and numbered 645 was obtained from Karadeniz Technical University Faculty of Medicine Scientific Research Ethics Committee.

The caregivers in the study were informed that they were free to participate in the study, and those who agreed to participate were included in the study. After the general information about the study was given, their informed consent was obtained.

Data analysis

SPSS for Windows 17 package program was used in the analysis of the data, and percentage, frequency, mean, *t*-test, variance, and correlation analysis in independent groups were used. The results were evaluated with a 95% confidence interval and $p < 0.05$ significance level. The normality distribution of the data was determined according to the Kurtosis and skewness coefficients. In the comparison of State Anxiety, Trait Anxiety, and Caregiver Burden pretest-posttest scores, gender, marital status, social security, degree of closeness, duration of

care, receiving care allowance from the state, living in a rented house, room belonging to the caregiver, caregiver. In the comparison of the scores of staying in the same room with the state-continuity anxiety and care burden, the *t*-test in independent groups, in the comparison of education status, occupation, number of rooms in the same room and state-continuity anxiety and care burden scores; analysis of variance (as further analysis, LSD was used when the variance was homogeneously distributed, Dunnett C was used when it was not). Pearson Correlation Analysis and Spearman correlation analyses were used in the analysis of the relationship between age, number of children, income and rent wages, and state-trait anxiety and care burden scores, and in the analysis of care burden scores and state-trait anxiety.

RESULTS

According to the results, 56.9% of the bedridden patients were female, their mean age was 72.75 ± 14.21 , the average number of children was 4.33 ± 2.36 , 43.1% were primary school graduates, and 82.4% were married. All of them had social security, and 56.9% had been bedridden for 3-10 months. The patients' mean BIADL score was low (20.29 ± 24.56), and the majority (66.7%) of the patients were completely bedridden.

In this study, we found that 74.5% of the caregivers were women, their mean age was 47.43 ± 13.59 , 51% were high school graduates, 70.6% were married, 72.5% and were spouses of the patients. An analysis of the responses showed that 94.1% of the caregivers had social security, 56.9% had been caring for the patient for 3-10 months, 72.5% did not receive a carer's allowance from the state, 43.1% lived in a rented house, 56.9% live in own houses with the patient, 58.8% of this own houses had 4 rooms, 84.3% of caregivers had her rooms, and 19.6% slept in the same room with the patient.

As can be seen in Table 1, caregiver burden and anxiety levels of the caregivers had lower post-test levels than pre-test levels. The differences between the pre

and post-test mean scores of SAI, TAI, and BI were statistically significant ($P < 0.05$).

The comparison of the state and trait anxiety scores according to demographic characteristics of caregivers revealed that the TAI scores of those who did not receive a carer's allowance from the state ($t = -2.336$, $P = 0.024$), SAI scores of those without social security ($t = -2.141$, $P = 0.037$) and other caregivers who were not the spouses of the patients ($t = 4.721$, $P = 0.035$) were found to be statistically significantly higher ($P < 0.05$) [Table 2]. The comparison of BI scores of caregivers according to their demographic characteristics showed that those with high school and higher education levels ($F = 4.074$, $P = 0.023$), and those who did not live in a rented house ($t = 3.030$, $P = 0.004$) had significantly higher BI scores ($P < 0.05$) [Table 2].

There was no statistically significant relationship between the BI scores of the caregivers and their SAI and TAI scores in the pre-test and post-test ($P > 0.05$) [Table 3].

DISCUSSION

Anxiety and care burden is among the most important problems for caregivers caring for bedridden patients because of a lack of knowledge about the care of patients.^[19,20] The patients in this study had a low level of activities of daily living, and the majority were found to be completely dependent. The literature shows that the anxiety levels of family members who receive the necessary information and support about the patient and the disease decrease.^[19,20]

One of the studies showed that caregivers may be more likely to experience depression and anxiety if they feel unprepared for the task of assuming care for their family with Acquired Brain Injury and behavioral problems or if they perceive the impact of the behavioral problems as being beyond their control.^[21] In this study, the SAI and TAI pre-test scores of the caregivers were found to be high. The responsibilities of caregivers towards the patients lead to negative consequences like physical fatigue, health problems, mental distress, economic/social problems, and deterioration of family relations and negatively affect their well-being by creating unfavorable effects on their anxiety levels.^[20-23] The literature mentioned that caregivers should be informed in advance about the problems and stressful situations they may experience to reduce their anxiety levels and that the training should be organized for their needs.^[24-26] Within the scope of the research, after regular training given to the caregivers in terms of care difficulties, it was seen that the mean scores of SAI, TAI, and BI post-test decreased. This result suggests that the regular training

Table 1: Pre-test post-test comparison of scale scores used in the study

State and Trait Anxiety Inventories Burden Interview	n	Mean	SD	P
State Anxiety (SAI) Pre-test	51	54.06	7.97	$t=11.083$,
State Anxiety (SAI) Post-test	51	38.43	6.41	$P=0.000$
Trait Anxiety (TAI) Pre-test	51	51.45	5.94	$t=9.693$,
Trait Anxiety (TAI) Post-test	51	41.59	7.05	$P=0.000$
Burden Interview (BI) Pre-test	51	75.75	11.41	$t=8.028$,
Burden Interview (BI) Post-test	51	57.69	13.39	$P=0.000$

**t*: Independent sample *t*-test

Table 2: The comparison of care burden, state and trait anxiety scores of caregivers according to their socio-demographic characteristics

	n	Burden Interview (BI)			State Anxiety (SAI)			Trait Anxiety (TAI)		
		Mean	SD	P	Mean	SD	P	Mean	SD	P
Gender										
Female	38	75.53	11.94	$t=-0.232,$	53.82	7.96	$t=-0.369,$	51.37	6.04	$t=-0.168,$
Male	13	76.38	10.14	$P=0.818$	54.77	8.27	$P=0.714$	51.69	5.86	$P=0.867$
Education level										
Illiterate	7	70.00	9.43	$F=4.074,$	55.57	9.93	$F=0.142,$	52.29	7.83	$F=0.084,$
Primary school	18	71.94	8.21	$P=0.023$	53.89	6.99	$P=0.868$	51.44	6.21	$P=0.920$
High school and higher	26	79.92	12.47		53.77	8.32		51.23	5.42	
Marital status										
Married	36	74.75	11.59	$t=-0.964,$	54.94	7.66	$t=1.236,$	51.81	6.61	$t=0.801,$
Single	15	78.13	10.97	$P=0.340$	51.93	8.54	$P=0.222$	50.60	3.98	$P=0.428$
Occupation										
Employee	11	79.27	10.48	$F=0.748,$	53.82	6.23	$F=0.007,$	52.27	3.88	$F=0.132,$
Officer	16	75.69	11.75	$P=0.479$	54.06	9.45	$P=0.993$	51.31	7.12	$P=0.876$
Housewife	24	74.17	11.70		54.17	7.92		51.17	6.06	
Social security										
Yes	48	75.90	11.54	$t=0.374,$	53.63	7.69	$t=-1.579,$	51.02	5.77	$t=-2.141,$
No	3	73.33	10.69	$P=0.710$	61.00	11.00	$P=0.121$	58.33	4.93	$P=0.037$
Degree of kinship										
Spouse	37	76.86	11.74	$t=1.143,$	53.14	7.62	$t=1.843,$	50.38	4.97	$t=4.721,$
Others	14	72.79	10.31	$P=0.259$	56.50	8.63	$P=0.181$	54.29	7.44	$P=0.035$
Time given care										
3-10 month	29	77.59	11.93	$t=1.333,$	54.55	8.36	$t=0.504,$	51.07	5.26	$t=-0.523,$
2-26 year	22	73.32	10.47	$P=0.189$	53.41	7.55	$P=0.617$	51.95	6.83	$P=0.603$
Receiving carer's allowance from the state										
Yes	14	79.64	10.77	$t=1.520,$	50.00	8.40	$t=-2.336,$	50.21	3.09	$t=-1.239,$
No	37	74.27	11.44	$P=0.135$	55.59	7.34	$P=0.024$	51.92	6.69	$P=0.221$
Living in a rented house										
No	29	79.66	12.01	$t=3.030,$	54.34	7.50	$t=0.292,$	50.86	5.58	$t=-0.810,$
Yes	22	70.59	8.30	$P=0.004$	53.68	8.71	$P=0.772$	52.23	6.44	$P=0.422$
Number of rooms in the house										
2	3	74.33	16.29	$F=0.198,$	52.00	11.27	$F=0.292,$	54.67	7.64	$F=0.548,$
3	18	74.56	7.90	$P=0.821$	55.11	5.42	$P=0.748$	50.78	4.80	$P=0.582$
4	30	76.60	12.96		53.63	9.06		51.53	6.48	
Patient's room										
Have	43	76.00	11.22	$t=0.367,$	54.30	8.19	$t=0.502,$	51.63	6.13	$t=0.489,$
None	8	74.38	13.15	$P=0.715$	52.75	6.94	$P=0.618$	50.50	5.07	$P=0.627$
Staying in the same room with patients										
Yes	18	75.06	11.15	$t=-0.316,$	53.39	6.73	$t=-0.440,$	50.94	5.73	$t=-0.446,$
No	33	76.12	11.70	$P=0.753$	54.42	8.64	$P=0.662$	51.73	6.12	$P=0.657$

*F: Analysis of variance (ANOVA), t: Independent sample t-test

Table 3: Investigating the relationship between care burden and state and trait anxiety in caregivers

Scale	r,p	State anxiety (SAI)	Trait anxiety (TAI)
Burden Interview (BI)	*r	-0.073	-0.169
Pre-Test	P	0.610	0.236
Burden Interview (BI)	*r	0.026	-0.065
Post-Test	P	0.857	0.650

*r: Pearson correlation analysis

given to caregivers in a home environment affected anxiety and care burden levels.

The comparison of socio-demographic characteristics and state and trait anxiety scores of caregivers providing care for bedridden patients revealed that the state anxiety scores of those who did not receive care allowance from the state, those who did not have social security, and those who were not the spouses of the patient had higher anxiety scores. The literature has shown that there is a relationship between the sociodemographic characteristics of patients/caregivers and care burden.^[6,24,26,27]

It is important to assess patients' and caregivers' conditions in their home environment and provide

care services.^[28] In this study, regular home visits, training with a personal care handbook, and telephone consultancy services are highlighted to reduce the burden on caregivers and ensure continuity of care. In the management of patient care, today's technological developments are also reflected in nursing practices, especially in the delivery of health services through telephone counseling. Telephone counseling for bedridden patients is an effective method to overcome the difficulties faced by caregivers and reduce their anxiety. Various studies argue that telephone counseling applications are effective in monitoring patients.^[29,30] In a long-term randomized controlled study with daycare and telephone counseling in caregivers of people with cognitive impairment; it was pointed out that a positive effect on reducing caregiver burden and depression.^[29] Similarly, Rabiei *et al.*^[28] found that the mean care burden score was reduced when the caregiver burden was compared just before and 2 months after the application of the strengthening program applied to hemodialysis patients. The care burden is an extremely difficult situation for patients and their families. Both the caregiver and the patient must be fully understood and supported.^[31] In this sense, for caregivers to continue their caregiver roles, their sorrows and needs should be addressed as well as their care burden.^[32] Because the care given by the caregivers who are physically and psychologically under heavy pressure would be inadequate.^[28] From this point of view, home environment and individual visits are the most effective ways to eliminate missing information in the interventions to address the problems of caregivers.^[1,2,33,34] The current study showed that the nursing interventions which a personal care handbook, regular home visits, and telephone counseling affect on care burden level of the caregivers of bedridden patients.

CONCLUSIONS

The present study shows that the use of nursing interventions which a personal care handbook and telephone counseling significantly reduced anxiety and care burden levels during the regular home visit period.

Recommendations

- Effective nursing interventions should be given to all caregivers and bedridden patients across Türkiye.
- In order to further demonstrate the importance of the impact of these interventions, it is recommended to conduct new studies with caregivers of different patient groups.

Limitations

This study did not represent all women of Türkiye state undergoing bedridden patient caregivers.

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Conflicts of interest

There are no conflicts of interest.

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