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Short Communication

The impact of nursing phone counseling on depression and anxiety in family caregivers

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Abstract

Introduction: Family caregivers play a large supportive role in the care of patients suffering from special conditions, such as trauma and stroke. This makes them to be at risks of variety of mental disorders such as anxiety and depression. Effective communication and nursing consulting can play an important role in managing anxiety and depression in family caregivers. The aim of this study was to investigate the effect of tele-counseling on the improvement of depression and anxiety in family caregivers of patients with trauma and stroke.

Methods: This is a clinical trial study with 80 caregivers of stroke survivors discharged from Hospital. Inclusion criteria included being the primary caregiver, over 15 years of age, lack of cognitive impairment (dementia and delirium), lack of mourning experience for the past 6 months, and patient care for at least 2 months at home. Study tools included Beck Anxiety and Depression Inventory. The data were analyzed using *t* test, Mann-Whitney U, Wilcoxon and ANOVA tests in SPSS software.

Results: In the experimental group, there was a significant decrease in levels of depression and anxiety of family caregivers of traumatic patients, but no significant difference was observed in the control group before and after the intervention.

Conclusion: Nursing telephone consulting reduced the level of depression and anxiety of family caregivers of traumatic patients. Therefore, the development of desirable protocols for tele-counseling to support acute and chronic disease caregivers is suggested.

Introduction

In human societies, brain damage is one of the leading causes of death and disability. Trauma and stroke are the two most common types of brain injury.[1] Stroke, which means acute brain injury, is a disruption of the blood supply to a part of the brain tissue caused by a blood clot or rupture of one of the arteries supplying that area. In other words, the cessation or disruption of blood flow to a part of the brain tissue that leads to the loss of normal function of that part is called a stroke.[2] After cardiovascular disease and cancer, strokes are the third leading cause of death worldwide, killing six and a half million people annually.[3] The death rate from stroke in Iran is estimated to be about 40 per 100 000 people.[4]

According to a recent report from the Ministry of Health, 150 000 to 160 000 people in Iran have a stroke each year, with a death rate of 15%.[5] Moreover, in today's society, trauma is a major cause of death and disability. Brain trauma is the leading cause of death among teenagers in developing countries, as well as the leading cause of disability and economic loss.[6] These factors affect patients and their families.[7] After hospitalization and initial recovery, about 80% of stroke and brain traumatic patients become reliant on their family members for everyday tasks, emotional and psychological management, and personality changes. The majority of the time, it is the patients' families that are responsible for their treatment.[8,9]

Caregivers play a critical role in the treatment of these patients. When a patient is discharged, family caregivers are the ones who provide the most treatment and assistance to the patient, and this care is unpaid and without benefits.[10] Unfortunately, family caregivers have limited resources, knowledge, and support to help them prepare

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for this task.[11] Therefore, they are exposed to a variety of mental illnesses, including anxiety and depression, as a result of the combination of these factors.[10] Suryani in a study showed that if caregivers are left untreated and not intervened, their level of physical and mental health decreases.[12] While and Dewsbury have stated that caring for a patient by the family can be difficult if they are lack of necessary knowledge or skills.[13] Study by Goudarzian et al[14] also showed that telemedicine interventions through telephone counseling have been effective in reducing the anxiety of family caregivers. Therefore, the aim of this study was to see how telemedicine, specifically telephone therapy, affected depression and anxiety in caregivers and enabled them to offer more mental health services for family members and better care to mental patients.

Methods

In this intervention clinical trial study (in calculating sample size, with confidence of interval of 90% and margin of error is 10% with population risk of stroke 25% was 52 patients), 80 caregivers of stroke survivors discharged from Haft-e-Tir hospital in 2018, which used a straightforward randomization approach without blinding in case and control groups, each group includes 40 people, were examined.

Inclusion criteria include age over 15, residency in Tehran, being the key person in charge of patient care, physical capacity to engage in study, ability to communicate by listening and speaking, literacy, cognitive health, no history of hospitalization in psychiatric hospital and psychotherapy, lack of grief experience in last 6 months, having at least once a week telephone nursing consultation from the research team, and patient treatment for at least 2 months at home. The cause and purpose of the research were explained to the patients prior to the start of the study, and written consent to participate in the study was obtained from them. They were also told that participation in the research was voluntary and that they could be dropped at any time.

Three nurses from the study team provided case group with 24-hour telephone nursing support for a period of 12 weeks. At the request of patient caregivers, telephone therapy was often given. Caregivers who did not request telephone therapy were called at least once a week to determine their need for counseling. In the control group, no nursing telephone therapy was given.

A demographic information questionnaire and the Beck Depression and Anxiety Inventory were used to collect data.

Twenty-one multiple-choice questions were used in the Beck Anxiety Inventory, which were used to measure caregivers' anxiety. Emotional, cognitive, and physical symptoms were divided into three categories. Each choice is worth one to three points, with a maximum score of 63. Asymptomatic depression (1-15), mild depression (16-31), moderate depression (47-32) and extreme depression (47-32) are the four levels of depression severity based on the individual's ranking.[15] Dabson and Mohammad Khani's research in 2007 found that the questionnaire has adequate and sufficient reliability, with a final coefficient of 78 percent in Iran.[16]

All the data was analyzed with SPSS 18.0. The data was analyzed using analytical statistics tests such as Mann-Whitney U and Wilcoxon test.

Results

At the start of study, 80 caregivers of trauma and stroke patients were included. Three patients in the case group and two in the control group died during the intervention, so the caregivers of the deceased patients were removed from the study. In addition, two participants from the intervention group and one from the control group refused to participate.

The majority of the family caregivers in the sample were between the ages of 30-39 years in both the control (59.5%) and case (42.9%) groups. Nearly 70% of caregivers in both groups had a high school diploma And over 40% in both groups had a relationship between the patient's spouse and the patient. In terms of patient ratio, mean age, sex, level of education, and region, there were no statistically significant difference between the case and control groups, and they were homogeneous.

The case group's mean anxiety score before the intervention was 11.96 with a standard deviation of 11.81, but after the intervention, with a substantial decrease, the mean anxiety score was 7.51 with a standard deviation of 6.63 (Table 1), whereas, there was no significant difference in this regard in the control group. The Wilcoxon test also revealed that after the intervention, the mean anxiety score in the case group was significantly lower than before the intervention ($P=0.002$). Changes in anxiety score before and after the intervention were not significant in the control group ($P=0.409$). Also, before the intervention, the mean anxiety score in the case and control groups was not significantly different ($P=0.467$). However, the intervention group's mean anxiety level after the intervention was significantly lower than the control group's ($P=0.008$). (Table 1).

According to the results, the mean score of depression in the case group before the intervention was 16.04 with a standard deviation of 12.10, but it was decreased significantly after the intervention with a mean of 12.95 and a standard deviation of 10.15. The Wilcoxon test revealed that the mean depression score after the intervention was significantly lower than before the experiment ($P=0.012$). This indicates that telephone nursing therapy was successful in lowering depression among patients' family caregivers. The differences in mean depression after the intervention were significant in the control group ($P=0.011$), but instead of declining, it increased significantly (Table 2). Furthermore, comparing

Table 1. Frequency distribution of caregivers' anxiety in case and control groups and comparison of means before and after the intervention

Anxiety	Before intervention				After intervention			
	Control		Case		Control		Case	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
None	16	43.2	16	45.7	13	35.1	21	60.0
Mild	6	16.2	9	25.7	8	21.6	8	22.9
Moderate	5	13.5	5	14.3	7	18.9	6	17.1
Severe	10	27.0	5	14.3	9	24.3	0	0.0
Total	37	100	35	100	37	100	35	100
Mean ± standard deviation	14.88 ± 12.78		11.96 ± 11.81		15.11 ± 12.01		7.51 ± 6.63	
Mann-Whitney U test result	$P=0.467$				$P=0.008$			

Table 2. Frequency distribution of caregivers' anxiety in the case and control groups and comparison of means before and after the intervention

Depression	Before intervention				After intervention			
	Control		Case		Control		Case	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Normal	17	45.9	11	31.4	15	40.5	15	42.9
Mild	6	16.2	7	20.0	8	21.6	12	34.3
Requires psychiatric counseling	1	2.7	4	11.4	1	2.7	2	5.7
Moderate	9	24.3	10	28.6	7	24.3	2	5.7
Severe	4	10.8	2	5.7	6	10.8	4	11.4
Excessive	0	0.0	1	2.9	0	0	0	0
Total	37	100	35	100	37	100	35	100
Mean ± standard deviation	14.87 ± 10.65		16.04 ± 12.10		15.77 ± 10.43		12.95 ± 10.15	
Mann-Whitney U test result	$P=0.866$				$P=0.321$			

the mean depression scores in the case and control groups before ($P=0.866$) and after the intervention ($P=0.321$) revealed that the differences between the two groups were not significant (Table 1).

Discussion

The findings of current study on the impact of telephone nursing therapy on anxiety and depression revealed that the case group's mean anxiety and depression score after the intervention was significantly different from the control group. Overall, the findings were positive. In the case group, telephone nursing therapy significantly reduces caregiver anxiety and depression. These findings are similar to those of Pfeiffer et al,[17] Khakbazan et al[18], Whitten et al[19] and Bastani et al.[20]

According to Pfeiffer et al, caregivers in the case group had significantly lower depressive symptoms and physical problems after three months of telephone nursing therapy. The reduction of symptoms was visible in young samples rather than in older samples.[17] Whitten et al have demonstrated how video technology and telecommunications can help with effective patient communication and better services.[19] In a similar study, it was discovered that group conversation and telephone therapy for patient caregivers can minimize perceived stress in women caring for elderly people with Alzheimer's disease.[20]

Melinamani's study on family anxiety in patients undergoing cardiac surgery, which is similar to the current study, found that family members' anxiety decreased after the intervention. With the exception that the Hamilton anxiety questionnaire was used in Melinamani's research and the Beck anxiety questionnaire was used in this study.[21]

The study of Navidian et al[22] on family caregivers of elderly patients showed that more than 80% of caregivers had moderate to severe stress. The findings of the current study were close to those of the previous study, with around a third of the caregivers having moderate to extreme anxiety and more than half having degrees of depression ranging from relatively depressed to totally depressed. These figures indicate that providing long-term care to chronic patients, such as those suffering from heat stroke or stroke, is linked to health problems, putting caregivers at risk of physical and mental illness.

Limitations of the study

One of the study's limitations is the limited length of the intervention (2 months), which, given the time-consuming nature of improvements in anxiety and depression, should be increased in future research.

Conclusion

One of the shortcomings of the Iranian health care system in delivering services to patients and their families is the lack of therapy centers after discharge in the community. As a result, it is suggested that hospital nursing managers minimize the distress of caregivers of discharged patients so that they can continue to provide treatment at home, and that a system of telephone nursing therapy be established after discharge so that caregivers at home receive the appropriate help and guidance from the nurse. Allocating a suitable location in the hospital for group discussion sessions with the possibility of sharing the origins and causes of anxiety and depression, exchanging positive experiences among patient caregivers, and obtaining necessary advice from clinical nurses may also be a solution to reduce anxiety and depression. The patients' families should be consulted.

Finally, it is proposed that further research be performed in the areas of various factors causing anxiety and depression in caregivers, the creation of optimal guidelines for telemedicine therapy to help caregivers of acute and chronic disease, the influence of other methods and tools of telecommunications and their effects on the level of anxiety and depression in caregivers, and the impact of other methods and tools of telecommunications and their effects on the level of anxiety and depression in caregivers.

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Competing Interests

None.

Ethical Approval

This research was approved by the regional ethics committee of Iran University of Medical Sciences and Health Services with registry no. 31164-203-02-9.

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