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The Effect of Planned Discharge Training on Stroke Patients Satisfaction and Caregiver Preparedness: A Pre-Test Post-Test Study

İnmeli Hasta ve Bakım Verenlerine Verilen Planlı Taburculuk Eğitiminin Hasta Memnuniyeti ve Bakım Verenin Bakıma Hazır Oluşluğu Üzerine Etkisi

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Abstract: Objective: This study aims to determine the effects of planned hospital discharge training of stroke patients and their caregivers on patient satisfaction and caregivers' preparedness for care. Methods: This study was conducted by using with semi-experimental method with one group pre-test post-test design was carried out in Kayseri City Hospital Neurology Clinic between February 2019 and January 2020. The research sample consisted of 58 inpatients with a diagnosis of stroke and 58 caregivers. Data were collected using a Questionnaire, which includes the descriptive characteristics of patients and caregivers, their disease and treatment characteristics, Preparedness for Caregiving Scale (PCS), Satis Stroke Questionnaire (SSQ), and Barthel Index (BI). Results: The post-discharge/post-training medians scores of PCS and SSQ was found to be statistically and significantly higher compared to their pre-discharge medians scores ($p<0.05$). A statistically significant positive correlation at high level was found between the median scores of PCS and SSQ ($r=0.617$) post-discharge and post-training ($p<0.05$). Conclusions: It is emphasized that health professionals, especially nurses, should carry out studies investigating the knowledge of stroke patient care and patient satisfaction, and that the lack of knowledge should be completed with in-service training. It is recommended to provide planned discharge training to ensure continuity of care and to use written training materials in these trainings, and to periodically evaluate the patient's satisfaction and caregiver's readiness for care using valid scales.
Keywords: Stroke, Preparedness, Satisfaction, Patients, Caregivers.

Öz: Amaç: Bu çalışmanın amacı, inme hastalarına ve bakım verenlerine verilen planlı taburculuk eğitiminin hasta memnuniyetine ve bakım verenlerin bakıma hazır olma durumlarına etkisini belirlemektir. Gereç ve Yöntem: Tek gruplu, ön-son test tasarımlı yarı deneysel olarak tipte olan çalışma, Kayseri Şehir Hastanesi Nöroloji Kliniğinde Şubat 2019-Ocak 2020 tarihleri arasında gerçekleştirildi. Araştırma örneklemini, inme tanısı ile yatan 58 hasta ve bakım veren 58 kişi oluşturmuştur. Veriler, hastaların ve bakım verenlerin tanımlayıcı özelliklerini, hastalık ve tedavi özelliklerini içeren Anket Formu, Bakım Vermeye Hazırlık Ölçeği (PCS), Satis İnme Anketi (SSQ) ve Barthel İndeksi (BI) kullanılarak toplandı. Bulgular: PCS ve SSQ'nun taburculuk sonrası/eğitim sonrası medyan puanları taburculuk öncesi medyan skorlarına göre istatistiksel olarak anlamlı derecede yüksek bulundu ($p<0, 05$). Taburculuk sonrası ve eğitim sonrası PCS ve SSQ ortanca puanları arasında istatistiksel olarak anlamlı yüksek düzeyde pozitif korelasyon ($r=0,617$) bulundu ($p<0, 05$). Sonuç: Sağlık profesyonellerinin özellikle hemşirelerin, inmeli hastaya bakım ve hasta memnuniyeti ile ilgili bilgilerini araştıran çalışmalar yapması ve bilgi eksikliğini hizmet içi eğitimlerle tamamlanmasının gerekliliği vurgulanmaktadır. Bakımın sürekliliğini sağlamaya yönelik planlı taburculuk eğitiminin verilmesi ve bu eğitimlerde yazılı eğitim materyallerinin kullanılması, hastanın memnuniyeti ve bakım verenin bakıma hazır oluşluk durumunun geçerli ölçekler kullanılarak, periyodik olarak değerlendirilmesi önerilmektedir.
Anahtar Kelimeler: İnme, Hazır oluşluk, Memnuniyet, Bakım verenler.

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Introduction

Stroke is a clinical syndrome characterized with lasting focal neurological disorders developing suddenly, and defines the generality of the events developing as a result of cerebrovascular disease. Stroke is an important community health problem progressively increasing worldwide (Emre, Çetiner and Korkut, 2020). Every year, 17 million people in the world have a stroke and 6 million people die because of it (Thrift et al., 2017). Although there are not comprehensive, stroke-related statistics in Turkey, according to Turkish Statistics Institute (TUIK) data in 2022, the deaths caused by circulatory system diseases are 35.4% and 19.2% among those is cerebrovascular diseases (TUIK, 2022).

Stroke decreases one's life quality and satisfaction as it causes functional deficiencies, and frequently has lasting effects. Impairment in physical and mental functions, disabilities, developing as a result of stroke negatively affects the individual's daily activities and the need for long term care restricts his perception of health and social activities (Emre et al., 2020). Caregivers who take care of stroke patients play an important role in helping their patients meet their physical, cognitive, and emotional needs. It is stated in the literature that caregivers of stroke patients do not have enough knowledge about treating stroke, preventing complications, and helping their patients during convalescence at home. Additionally, it has been demonstrated that this situation causes caregivers to experience troubles such as anxiety, physical problems, social isolation, and decrease in their quality of life (Cheng, Chair and Chau, 2014; Merati-Fashi, Dalvandi and Parsa Yekta, 2022; Mou and Chien, 2023; Sajwani-Merchant, Behan and Swank, 2023).

Henrikson and Årestedt demonstrated in their study that the caregivers who are more prepared for care could positively affect the patients' healing and their quality of life to a considerable extent (Henrikson and Årestedt, 2013). Another study reported 158 old stroke patients and their caregivers that after a planned discharge training, the levels of being more prepared to care and the levels of their satisfaction of their needs being met are considerably higher (Shyu, Chen, and Chen, 2008). In addition, in some studies it was determined that the stroke training and emotional support given to patients and their caregivers increase satisfaction (Heiberger et al., 2020; LeLaurin et al., 2020). It was demonstrated in several studies on the caregivers of stroke patients that initiatives intended for caregivers have improved the perception of being prepared for care, and enhance particularly their confidence, self-

sufficiency, competence, and their perception of the quality of care (Hall, Crocker and Clarke, 2019; Crocker, Brown and Lam, 2021).

The sustainability of the stroke patient care can be achieved with discharge training designed for individuals having received service from a health institution and discharged from it (Rodgers and Price, 2017). Positive developments and changes occurring in the patients who have received discharge training increase the patient daily activities and their life quality. It has been suggested that discharge training accelerates patient healing process, increases their self-confidence, decrease the frequency or need of applying to a health institution, decreases the cost of increases the quality of and satisfaction with care, and keep dynamic the relations between health staff (Çam and Asar, 2019).

After the patient is discharged, he/she may experience problems related to the illness and treatment process at home. Examples of these problems are difficulty in care, repeated hospitalizations, nutritional problems, delayed recovery, drug side effects, anxiety, depression, stress and decreased quality of life (Araújo, Lage and Cabrita, 2018; Luther, Wilson and Kranz, 2019). In addition, complications that may occur can be reduced by systematic discharge training. Communication between the patient and the nurse can be increased, and as a result, patient satisfaction can be increased (Gao et al., 2018). When the literature was reviewed, it was revealed that discharge education can improve caregiver readiness and improve patient satisfaction (Hu et al., 2020). Therefore, a systematic education that will provide a connection between the hospital and the home is needed to maintain the care of the patients at home (Yalçın, Arpa and Cengiz, 2015). Planned discharge training oriented to patients and caregivers being given by nurses may contribute to diminishment of caregivers' care loads, maintenance of their well-being, and the qualitative maintenance of patient care. The findings obtained from this study may provide data for the addition of stroke education interventions to care plans for stroke patients and their caregivers and for future studies on this subject. Therefore, our study was conducted to determine the effect of discharge education given to stroke patients and their relatives on patient satisfaction and caregiver readiness for care.

Material and Method

Aim

In this study, our aim was to determine the effects of planned hospital discharge training of stroke patients and their caregivers on patient satisfaction and caregivers' preparedness for care.

Design

This study incorporated a semi-experimental, pre-test/ post-test design.

Setting and Sample

This study was conducted in patients under treatment for stroke in the neurology clinic of a state hospital and the caregivers who provide care for these patients.

Primarily, 58 individuals who met the inclusion criteria were included in the study as the pilot group. Interim assessment was made with the data belonging to 58 volunteers and power analysis was made in the light of pre-training and post-training points of preparedness scale and Satis-stroke questionnaire. In the power analysis, post-study power for $\alpha=0.05$ and $n=58$ was found to be %100. Since the power of the study was adequate, the number of samples was not increased. 58 patient and caregivers who met the criteria were included in the study (Figure 1).

Data Collection

The data of the study were collected by Patient and Caregivers Description Form, The Preparedness for Caregiving Scale (PCS), Satis-Stroke Satisfaction Questionnaire (SSQ), and Barthel Index (BI). In addition, Planned Discharge Training Booklet was used for education of stroke patients and their caregivers. This booklet, prepared in light of literature for patients with stroke and their caregivers, contains helpful information related to the care of the patients with stroke and its prevention.

The Patient and Caregivers' Description Form

The form was prepared by researchers in accordance with the literature. This form, which was used to determine the characteristics of patients and caregivers, consists of 14 questions about personal information such as the caregiver's age, gender, and educational level and 3 questions related to the patient age, income level, deficits developing after stroke and dependency level.

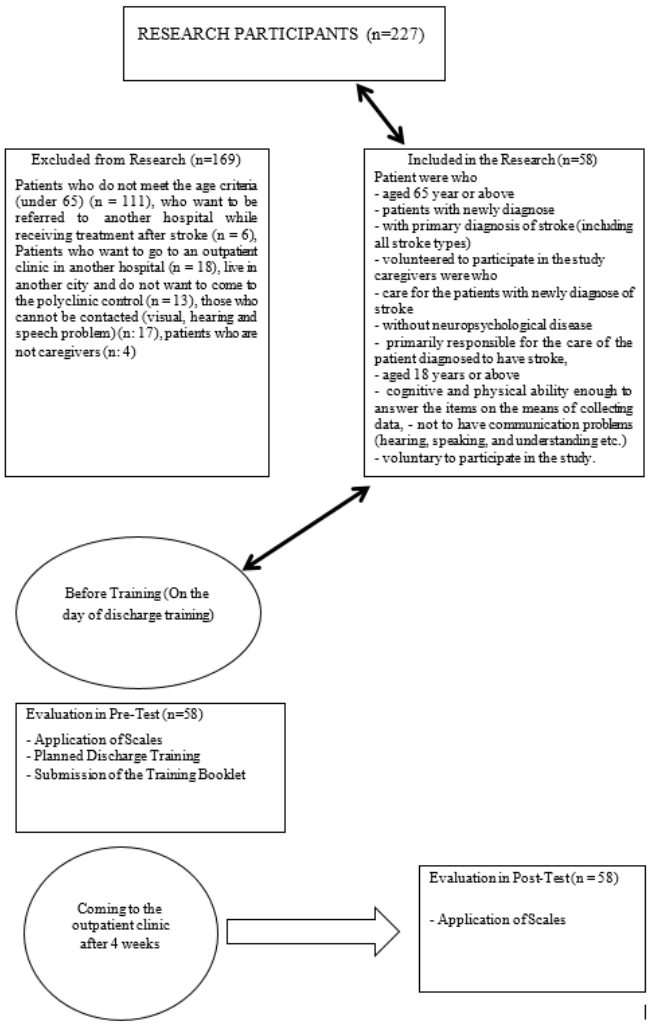

Figure 1. Flowchart of Subject Progression in This Pretest, Posttest Quasi-Experimental Design

The Preparedness for Caregiving Scale (PCS)

The scale was developed by Archbold et al. (1990) in the USA. The scale consists of eight items. The scale consists of eight items answered on the 5-point Likert-type scale (Archbold, Stewart and Greenlick, 1990). The scale score ranges from 0 (not at all prepared) to 4 (very well prepared). This Likert type of assessment is used to calculate the mean of the answers given to each item. Total score ranges between 0 and 32 points. High points obtained from the scale indicate that the caregiver feels he is enormously ready to give care unlike the low points, which indicate that the caregiver feels he is less ready (Archbold et al., 1990). This scale has been translated into Turkish and its validity and reliability have been determined by Karaman and Karadokovan. (Karaman and Karadokovan, 2015). In the analyses of the split-half test reliability of the scale, Spearman-Brown co-efficient and Gutmann Split-Half coefficient

reliability have been detected to be 0.90. Cronbach alpha coefficient has been calculated to be 0.92. The Cronbach alpha coefficient has been found as 0.850 in this study.

Satis-Stroke Questionnaire (SSQ)

SATIS-Stroke questionnaire (SATIS-Stroke) measure perceived satisfaction in the activity and participation in patients after chronic stroke. Developed by Bouffioulx, Arnould and Thonnard (2018), this questionnaire has been translated into Turkish, and its reliability and validity have been determined by Gür (Bouffioulx, Arnould and Thonnard, 2018; Gür, 2015). This scale consists 36-items. Each item has four response options (very satisfied, satisfied, dissatisfied, and very dissatisfied). In assessing the reliability of Satis-stroke, SPSS packet program has been used to calculate Cronbach alpha coefficient and internal consistency analyses have been made. The Cronbach-alpha coefficient of the 36-item scale has been found to be 0.918. In studies in the field of health, a Cronbach-alpha value indicates that the scale is reliable. In the present study also, Cronbach-alpha internal consistency of Satis-stroke questionnaire has been found to be 0.919. SATIS-stroke questionnaire consists of 36 items containing 9 of the fields determined by International Classification of Functioning, Disability, and Health (ICF). Each item is about learning and implementing knowledge, 1 question about general duties and demands, 6 about communication, 6 about mobilization, 9 about self-care, 3 about home life, 6 about personal interaction and relations, one about general life areas, and 3 questions about community and city life. The items are scored from 0 to 3 points and the total ranges from 0 to 108 points. Items with higher scores show greater satisfaction with regard to activities and participation.

Barthel Index

Developed by Mahoney and Barthel (1965) to assess physical independence in daily life activities is a scale consisting 10 items (transfer, ambulation/using wheeled chair, ascending and descending stairs, feeding, dressing, self-tidying, bathing, using toilet, urinary incontinence, and fecal incontinence). Total scores are calculated by scoring each item separately with three positional point scoring system (depending on the question, with increases of 5 points in the 0-15 range). Total score varies between 0 and 100; 0-20 indicates complete dependency, 21-60 severe dependency, 61-90 moderate dependency, 91-99 mild dependency, and 100 indicates complete independency. Those with a total score below 40 in this scale cannot go home (i.e. cannot be discharged); they are dependent for their ambulation and personal care. A score of 60 indicates the patient's position between dependency and aided independency. The

patient with a score between 60 and 80 may need a certain amount of support from governmental organizations to survive if they live alone. Those whose scores are over 85 can be discharged to continue to live in the society. Such patients are independent in their transfer; they can walk or use their wheelchair alone without help (Mahoney and Barthel, 1965). The Validity and reliability studies of the Turkish version were conducted in 2000 and its Cronbach alpha value has been found to be 0.93 (Küçükdeveci, Yavuzer and Tennant, 2000). The Cronbach alpha coefficient has been found as 0.84 in this study.

Training Booklet

The planned discharge training booklet has been prepared for stroke people and their caregivers in line with the literature (Bjartmarz, Jónsdóttir and Hafsteinsdóttir, 2017; Birol, 2005; Kabita and Ajish, 2016; Verheyden et al., 2018). The information contained in the booklet contains information that helps with stroke patient care/stroke prevention. The 'Stroke Education Manual' for stroke patients and their caregivers was prepared by the researcher by taking expert opinion. Types of stroke, stroke symptoms, complications that may develop after stroke, stroke course and follow-up, swallowing problem, importance of nutrition in stroke patients, oral care, signs and symptoms of infection, precautions should be taken for the continuation of falls, prevention of pressure ulcer development, bleeding, exercise, anxiety, fatigue, pain, emergency are included in the content of the booklet.

Intervention

In present study, the nursing diagnosis of the hospitalized stroke patients in the neurology clinic, from hospitalization until discharge, has been determined with the help of the nurse observation forms. Face to face, interview technique has been used for data collection. Each patient and caregiver have been given standardized stroke training, in sessions each lasting 30-40 minutes, in line with the determined nursing diagnosis (Figure 2). Patients were recruited within 24 hours of admission. On the first day of the clinic, the patients' satisfaction with the Satisfaction-stroke satisfaction questionnaire, the dependency levels of the patients and the readiness of the caregivers with the Readiness Scale were evaluated with the Satisfaction-stroke Satisfaction Questionnaire before the training/discharge. One month after discharge when the stroke patients came for their routine clinical controls, how much the caregivers were caregivers' preparedness for care and the level of patient satisfaction were re-assessed with the scale of preparedness for care and Satis-stroke questionnaire, respectively.

Nursing Diagnoses	Patient Number (%)
Knowledge Deficient about the patient's condition, disease and care medications, nutrition (dm, ht), complications that may ocur and follow-up of the disease	58 (100)
Pain related to the limitation of physical movements	50/(86.2)
Nutrition İmbalanced: Less Than Body Requirements due to change in nutrition, chewing and swallowing difficulty	31/(53.4)
Anksiyete due to problems caused by stroke	58/(100)
Constıpatıon due to psychosocial factors, changes in activity and diet	25/(43.1)
Self-care deficit due to impaired physical mobility	58/(100)
Infectıon Rısk due to nutrition less than body requirements , age-related changes in the immune system, drugs used for a long time, lack of self-care	58/(100)
Impaired Skin İntegrity due to ***impaired*** mobility,	31/(53,4)
Fall Rısk due to impaired sensory functions and movement	34/(58,6)
Aspıratıon Rısk due to swallowing difficulty	58/(100
Impairment In Verbal Communıcatıon due to impaired motor functions of speech muscles	24/(41,3)
Impairment Of Physıcal Mobılıty due to neuromuscular impairment and partial paralysis	58/(100)
Functıonal Urınary Incontınence due to bladder muscles being affected	48/(82,7
Interruptıon In The Famıly Process regarding the disease and the treatment process	58/(100)
Ineffective Coping due to anxiety and impaired verbal communication and changes in motor and sensory functions	58/(100)
Sexual Dysfunctıon due to changes in body functions to stroke	58/(100)
Ineffective Health Maıntenance due to decreased gross and fine motor skills secondary to stroke	58/(100)
Fatigue due to insufficient physical activity and nutrition less than body requirements	58/(100)

Figure 2. Possible / Potential Nursing Diagnoses for Stroke Patients

Ethical Considerations

This study was approved by Gazi University Research Ethics Committee (No: 02, Date: 12.02.2019). Informed consent was obtained from the participants of the study and information was given about the study based on the Declaration of Helsinki.

Data Analyses

The data were analyzed using SPSS (Statistical Package for Social Science) version 18-statistitical software. The suitability of the data for normal distribution has been assessed with Shapiro-Wilk test. Variance homogeneity was tested with Levene test. Mann-Whitney U test, a non-parametric test, was utilized in comparing the scores of non-normally distributed two-group variables. Wilcoxon test was used for quantitative variables in repeated paired measure

comparisons. Spearman correlation analysis was used in the analysis of the correlations between PCS, SSQ and BI. The statistics in the tables have been presented as arithmetic mean, standard deviation, median (min-max). The level of statistical importance in our study has been taken as $p< 0.05$.

Results

The mean age of the population of the caregiver included in this study is 54.66±13.47. It was determined that 82.8% of the caregivers were female, 89.7% were married, 50% were primary school graduates, 89.7% had children, 72.4% were housewives. Of the caregivers, 77.6% reported their economic status as moderate, 62.1% lived in city, 77.6% lived with their spouses, 44.8% look after their spouses, 67.2% lived with the patient, 89.7% were inexperienced in patient care, and 58.6% received support in patient care (Table 1). The mean age patient population is 74.91±9.01. It was found that 37.9% of are severe dependent, 29.3% had applied to hospital with consciousness as the first symptom developing as a result of stroke. It has been found that the most frequently accompanying chronic disease in patients is hypertension with a ratio of 41.4% (Table 2).

In present study, the median scores of the Preparedness for Caregiving Scale of caregivers and Satis-Stroke Questionnaire of their patients in the post-discharge period were found statistically and significantly higher than their medians in the pre-discharge ($p<0.05$) (Table 3). A statistically significant positive correlation at medium level was found between the median scores of preparedness for caregiving scale and Satis-stroke questionnaire ($r=0.503$) and between the median scores of Satis-stroke questionnaire and Barthel index ($r=0.512$) pre-discharge. A statistically significant positive correlation at very high level was found between the median scores of the Satis-stroke questionnaire and bartel index ($r=0.807$) pre-discharge. A statistically significant positive correlation at high level was found between the median scores of preparedness for caregiving scale and Satis-stroke questionnaire ($r=0.617$) post-discharge (Table 4).

When the scale scores of the caregivers and patients in the post-discharge period compared to the pre-discharge period were evaluated according to the descriptive characteristics of the caregivers, it was found that there was a statistically significant difference between the median scores of the caregivers according to their gender, education level, caregiving experience, and the dependence level of their patients ($p<0.05$) (Table 5).

In our study, the PPC median scores of both men and women caregivers and SSQ median scores of these caregivers' patients were found to be statistically significantly higher after post-discharge compared to the pre-discharge ($p<0.05$). The caregivers who had literacy, primary school graduates, high school graduates, university graduates had a statistically significantly higher median scores of PCS post-discharge compared to the pre-discharge ($p<0.05$). Also the SSQ median scores of these caregivers' patients were found statistically significantly higher after post-discharge ($p<0.05$) (Table 5).

The PCS median scores of caregivers who had no previous caregiving experience and the SSQ median scores of these caregivers' patients were found statistically significantly higher after post-discharge compared to pre-discharge. The PCS median scores of caregivers who patients had mild and severe dependent and complete independent were found statistically significantly higher after post-discharge compared to pre-discharge. The SSQ median scores of patients who had mild dependent had a statistically significantly higher after post-discharge (Table 5).

Table 1: Descriptive Features of Caregivers (n=58)

Age	54.66±13.47
Gender	
Male	10(17.2 %)
Female	48(82.8%)
Marital status	
Married	52(89.7%)
Single	6(10.3%)
Education Status	
Literate	16(27.6%)
Primary school	29(50.0%)
High school	10(17.2 %)
University	3(5.2 %)
Having Children	
Yes	52 (89.7%)
No	6(10.3 %)
Occupation	
Retired	8(13.8%)
Officer	3(5.2 %)
Housewife	42(72.4 %)
Worker	3(5.2%)
Other	2(3.4%)
Economic status	
Good	5(8.6%)
Moderate	45(77.6%)
Poor	8(13.8%)
Place of residence	
City	36(62.1%)

Town	15(25.9%)
Village	7(12.1%)
Living status	
Alone	2(3.4 %)
With spouse	45(77.6%)
With children	6(10.3%)
With others (mother, father, relative etc.)	5(8.6%)
Relationship closeness	
Spouse	26(44.8%)
Children	25(43.1%)
Relatives	7(12.1%)
Living together with the patient	
Living	39(67.2%)
Not living	19(32.8%)
Prior caregiving experience	
No	52(89.7%)
Yes	6(10.3%)
Receiving support from another individual in providing care	
No	24(41.4%)
Yes	34(58.6 %)

Table 2: Descriptive Features of Patients (n=58)

Age	74.91±9.01
Level of dependence according to Barthel index	
Mild dependent	1(1.7 %)
Moderate dependent	13(22.5%)
Severe dependent	22(37.9%)
Complete independent	22(37.9%)
Stroke-related symptoms when admitted to the hospital	
Numbness or tingling in the face, arms and legs, one side of the body	7(12.1%)
Difficulty walking	8(13.8 %)
Loss of balance	7(12.1%)
Difficulty moving arms and legs	11(19.0%)
Difficulty speaking	7(12.1%)
Sudden trouble seeing or double vision in one or both eyes	1(1.7%)
Clouding of consciousness	17(29.3 %)
Diagnosed Chronic Disease	
No	26(44.8 %)
*Yes	32(55.2%)

**Hypertension(n=24), Diabetes mellitus (n=11), Hyperlipidemia (n=2), Heart disease (n=8)*

Table 3: Comparison of Median Scores of the Preparedness for Caregiving Scale (PCS) and Satis-Stroke Questionnaire (SSQ) (n=58)

Scales	**Predischarge/Pretraining**	**Post discharge/Post training**	*p**
PCS	8.0(5.5-12.0)	21.0(16.0-24.0)	<0.001
SSQ	29.5(0.0-38.0)	35.0(1.5-68.5)	<0.001
p**	<0.001	<0.001	

** Wilcoxon test **Mann Whitney U test, Data were shown as median (Q1-Q3))*

Table 4: Relationship between the Preparedness for Caregiving Scale (PCS), Satis-Stroke Questionnaire (SSQ) and Barthel Index (BI) Predischarge/Pretraining

	PCS	**SSQ**	**BI**
PCS	1	0.503**	0.512**
SSQ		1	0.807**
Bİ			1
Post discharge /Post training			
	PCS	**SSQ**	
PCS	1	0.617**	
SSQ		1	
BI		1	

*** Spearman Correlation Analysis*

Discussion

Discharge training has an important place in stroke patients as in other chronic diseases. It is also considerably important to determine the preparedness level of caregivers to care and provide the pre-discharge training and support in the subjects they need (Baykal, 2018).

It was demonstrated that a 4-week training program intended to raise the knowledge, motivation, and behavioral skills has improved the caregivers' post stroke level of knowledge, increased the patients' skills to do their daily activities and decreased complications (Pitthayapong, Thiangtam and Powwattana, 2017). Studies show that it was found that the post training levels of preparedness for care of the caregivers exposed to discharge training are higher than their pre-training levels (Mohammadi, Zabolypour and Ghaffari, 2019; Holm, et al., 2016). In our study also, consistent with this results, it was determined that post training levels of preparedness for care of the caregivers of stroke patients have increased.

In our study, as a result of the discharge training given to stroke patients and their caregivers, an increase was detected in patient satisfaction in the period after discharge compared to the level their satisfaction before training. Life satisfaction is an individual's emotional reaction or attitude to his life in his job, leisure, and at other times. In patient-based practices, it is important that satisfaction level be determined (Krishnan, Hay and Pappadis, 2019). Although it is reported in the literature that SATIS-stroke questionnaire should be used to assess stroke patients' satisfaction, there have been found limited number of studies on this subject. It was determined in the study by Bouffioulx et al. that there was a positive correlation between the scores of Satis-stroke questionnaire and Barthel Index and that the satisfaction of the patients who perform their activities independently was better (Bouffioulx et al., 2008). It was determined in the study by Smith (2015) that functionally limited stroke patients had lower

life satisfaction (Smith, 2015). Similarly, in study of Gür (2015), it was also found that there was a significant positive correlation between the scores of SATIS-stroke and Barthel Index (Gür, 2015). In our study, consistent with these study results, it was determined that the higher the independence level of the patients, the better life satisfaction.

In the literature, it was reported that stroke patients' life-satisfaction and life-quality were correlated, and patients' motor and cognitive problems in particular, affect life-satisfaction. In connection with these problems, it was suggested that patients' being dependent in their daily life activities affect their satisfaction (Oosterveer, Mishre and Van Oort, 2017; Chimatiro, Rhoda and De Wit, 2018; Wang, Li and Zhao, 2023).

An important marker of the quality of patient care, satisfaction increasingly gained more importance in quantifying the result of stroke that the satisfaction with the care of the stroke patients' increases might relieve both the patients and caregivers' stress as well as increasing quality of life. In the study of Heiberger et al. was reported in their study in which they have assessed the satisfaction of patients and their caregivers that those who experience the impact of stroke less are more satisfied with life (Heiberger et al., 2020). In addition, it was found that the care workers with high perception of care load have low levels of life satisfaction). Similarly, another study also, it was reported that the impact of stroke and caregivers' load affect the patient and caregiver's life satisfaction (He et al., 2023). The results obtained from our study indicate that the caregiver and the patient' being informed of patient care or effective rehabilitative interventions being made is important.

Chen, Xiao and Chamberlain suggested that as the majority of the patients are moderately or seriously dependent, caregivers' need care support and caregivers' level of preparedness to care should be satisfactory (Chen, Xiao and Chamberlain, 2022). In our study also the dependency level of the majority of the patients was serious and complete by Barthel Index. In addition, in the present study, the PCS median scores of caregivers who patients had mild and severe dependent and complete independent and the SSQ median scores of patients who had mild dependent were found statistically significantly higher after post-discharge. This result showed that the caregivers and their patients had need pre-discharge education and the educational support had a positive effect on patient satisfaction and caregiver preparation for care.

Table 5: Comparison of Scale Scores Before and After Discharge Education According to Some Characteristics of the Caregiver and the Patient

Caregiver	Variables	Pretraining PCS	Post training PCS	p*	Pretraining SSQ	Post training SSQ	p*	BI
Education status	İlliterate (*n*=3)	8.0 (7.0-12.0)	20.0 (19.0-21.0)	0.109	31.0 (0.0-46.0)	48.0 (35.0-70.0)	0.109	35.0 (10.0-65.0)
	Literate (*n*=13)	8.0 (0.0-16.0)	22.0 (16.0-32.0)	0.001	35.0 (0.0-72.0)	38.0 (0.0-108.0)	0.27	25.0 (5.0-80.0)
	Primary school (*n*=29)	8.0 (0.0-32.0)	17.0 (9.0-32.0)	<0.001	5.0 (0.0-69.0)	34.0 (0.0-106.0)	0.001	25.0 (0.0-95.0)
	High school (*n*=10)	10.0 (1.0-23.0)	23.0 (16.0-27.0)	0.005	34.0 (0.0-70.0)	46.0 (2.0-105.0)	0.012	35.0 (0.0-90.0)
	University (*n*=3)	8.0 (7.0-16.0)	24.0 (22.0-24.0)	0.109	44.0 (3.0-54.0)	61.0 (4.0-73.0)	0.109	70.0 (5.0-90.0)
Prior caregiving experience	No (n=52)	8.0 (0.0-32.0)	22.5 (9.0-32.0)	<0.001	26.0 (0.0-72.0)	35.0 (0.0-108.0)	<0.001	25.0 (0.0-90.0)
	Yes (n=6)	14.0 (8.0-23.0)	24.5 (17.0-30.0)	0.001	35. 0(0.0-59.0)	36.5 (0.0-106.0)	0.096	30.0 (0.0-80.0)
Barthel Index	Mild dependent (n=13)	10.5 (7.0-32.0)	24.0 (16.0-32.0)	<0.001	53.0 (29.0-72.0)	71.5 (48.0-108.0)	0.001	75.0 (65.0-90.0)
	Severe dependent (n=22)	8.0 (0.0-23.0)	22.0 (16.0-27.0)	<0.001	34.5 (0.0-55.0)	35.0 (0.0-70.0)	0.169	30.0 (25.0-55.0)
	Complete independent (n=22)	8.0 (0.0-14.0)	16.0 (9.0-24.0)	0.001	0.0 (0.0-35.0)	0.0 (0.0-38.0)	0.437	5.0 (0.0-15.0)

The data are expressed as median (1st quarter and 3rd quarter).
**It was used Mann Whitney U or Kruskal Wallis Test.*

In our study, a statistically significant correlation at a considerable level was found between PPC and SSQ scores. It was thought that this result enabled caregivers to be ready to give care and that their care loads decrease with the increase in their knowledge and skills in patient care, thus increasing patients' satisfaction. It was reported that the discharge training oriented to caregivers affects caregivers' management of patients and is helpful in developing methods of coping with stress. In this context, it was reported that patients' disease-related problems are decreased and thus their life quality is increased (Tsai, Lou and Feng, 2018; Blanton, Clark and Cotsonis, 2020).

In addition to factors such as insufficient care readiness of the caregiver, lack of social support, health status, deterioration of family functions, it is stated that the level of education is one of the important factors affecting caregiving (Lutz & Camicia, 2016). In our study, no significant difference was found between the median scores of the illiterate population and the university graduate population before and after the training. It is thought that this may be due

to the low level of health literacy in the illiterate group and limited utilization of the training material because they were illiterate. However, it was determined that the level of readiness to give care was higher in the post-training period compared to the pre-training period in the intergroup comparison of literate, primary education graduate, secondary education graduate caregivers. In studies, it is stated that the burden of caregiving decreases as the educational level of caregivers increases. This is explained by the fact that caregivers are safer and more prepared in patient care by identifying and using the resources they can access to obtain the necessary knowledge and skills to provide care (Mollaoğlu, Tuncay and Fertelli, 2011). Unlike these studies, in our study, no significant difference was found between the readiness to care levels of university graduates in intra-group and inter-group comparisons. It is thought that this may be related to the small number of caregivers who are university graduates and the fact that the studies were conducted in different populations and sample groups.

In the literature, it is seen that caregivers with caregiving experience have less care burden and their adaptation to care is better (Ghazzawi, Kuziemsky and O'Sullivan, 2016; Parr and Mielenz, 2023). In our study, it was observed that those with previous caregiving experience were more ready to provide care in line with the literature.

In the literature, it is stated that care burden decreases as the level of independence increases (Kankaya & Karadakovan, 2017; Orak & Sezgin, 2015). In our study, it is thought that the readiness to care scores of caregivers were higher both before and after discharge training because the burden of care was less in the moderately dependent group.

In present study, it is thought that, in line with the literature, caregivers of stroke patients' being equipped with adequate knowledge and skills will have a positive effect on reducing the care of stroke patients and the impact of disease. In other words, the caregivers' being strengthened with training or being supported directly affects the patient's quality of life and cause his level of independence to increase.

Conclusions

When the readiness of the caregivers and the satisfaction of the patients were compared with the post-stroke education, the difference was found to be statistically significant. It was determined that discharge training given to stroke patients and their caregivers improved readiness for care in caregivers and satisfaction in patients.

In conclusion, we recommend the following points.

- Health professionals working in the neurology clinic should periodically evaluate the patient's satisfaction and caregiver's readiness for care, using valid scales, from the moment of diagnosis of stroke patients.
- The factors affecting the patient's life satisfaction and the caregiver's readiness for care should be identified in the early period and appropriate interventions should be made.
- Health professionals should also carry out studies investigating their knowledge of stroke patient care and patient satisfaction, and the lack of knowledge should be completed with in-service training.
- Planned discharge training should be provided to ensure the continuity of care for stroke patients and written training materials should be used in these trainings.
- It is recommended to repeat the effectiveness of the study with a larger sample group and a longer time.

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References

Araújo, O., Lage, I., Cabrita, J., Teixeira, L. (2018). Training informal caregivers to care for older people after stroke: A quasi-experimental study. *J Adv Nurs*, 74(9), 2196-206.

Archbold, P. G., Stewart, B. J., Greenlick, M. R., Harvath, T. (1990). Mutuality and preparedness as predictors of caregiver role strain. *Res Nurs Health*, 13(6), 375-84. doi: 10.1002/nur.4770130605. PMID: 2270302.

Baykal, D. (2018). İnmeli Hasta ve Yakınlarına Verilen Eğitimin Günlük Yaşama Adaptasyon, Özyeterlilik, Yaşam Kalitesi ve Bakım Verici Yükü Üzerine Etkisi. Doctoral Thesis, Istanbul University Institute of Health Sciences, İstanbul, 3-4, 19-21.

Bjartmarz, I., Jónsdóttir, H., Hafsteinsdóttir, T. B. (2017). Implementation and feasibility of the stroke nursing guideline in the care of patients with stroke: A mixed methods study. *BMC Nursing*, 16(1), 1–17.

Blanton, S., Clark, P. C., Cotsonis, G., & Dunbar, S. B. (2020). Factors associated with depressive symptoms of carepartners of stroke survivors after discharge from rehabilitation therapy. *Topics in Stroke Rehabilitation*, 27(8), 590–600. https://doi.org/10.1080/10749357.2020.1738678.

Birol, L. (2005). Hemşirelik süreci, hemşirelik bakımında sistematik yaklaşım. (7. Baskı). İzmir: Etki Yayıncılık, 35-38, 56-60, 80-83.

Bouffioulx, E., Arnould, C., & Thonnard, J. L. (2008). SATIS-Stroke: A satisfaction measure of activities and participation in the actual environment experienced by patients with chronic stroke. *Journal of Rehabilitation Medicine*, 40(10), 836–843. https://doi.org/10.2340/16501977-0272

Chen, L., Xiao, L. D., & Chamberlain, D. (2022). Exploring the shared experiences of people with stroke and caregivers in preparedness to manage post-discharge care: A hermeneutic study. *Journal of Advanced Nursing*, 78(9), 2983–2999. https://doi.org/10.1111/jan.15275

Cheng, H. Y., Chair, S. Y., & Chau, J. P. (2014). The effectiveness of psychosocial interventions for stroke family caregivers and stroke survivors: a systematic review and meta-analysis. *Patient Education and Counseling*, 95(1), 30–44. https://doi.org/10.1016/j.pec.2014.01.005

Chimatiro, G. L., Rhoda, A. J., & De Wit, L. (2018). Stroke patients' outcomes and satisfaction with care at discharge from four referral hospitals in Malawi: A cross-sectional descriptive study in limited resource. *Malawi Medical Journal: The Journal of Medical Association of Malawi*, 30(3), 152–158. https://doi.org/10.4314/mmj.v30i3.4.

Crocker, T. F., Brown, L., Lam, N., Wray, F., Knapp, P., & Forster, A. (2021). Information provision for stroke survivors and their carers. *The Cochrane Database of Systematic Reviews*, 11(11), CD001919. https://doi.org/10.1002/14651858.CD001919.pub4

Çam, R. & Salık Asar, A. (2019). Total Kalça Protezli Hastalara Verilen Taburculuk Eğitiminin Günlük Yaşam Aktiviteleri ve Yaşam Kalitesine Etkisi. *Dokuz Eylül Üniversitesi Hemşirelik Fakültesi Elektronik Dergisi*, 12 (4), 220-233. Retrieved from https://dergipark.org.tr/tr/pub/deuhfed/issue/49501/633167.

Emre, A., Çetiner, M. & Korkut, Y. (2020). Quality of Life and Related Factors in Stroke Patients. *Turkish Journal of Family Medicine and Primary Care*, 14 (1), 103-111. DOI: 10.21763/tjfmpc.693149.

Gao, M. C., Martin, P. B., Motal, J., Gingras, L. F., Chai, C., Maikoff, M. E., Sarkisian, A. M., Rosenthal, N., & Eiss, B. M. (2018). A Multidisciplinary Discharge Timeout Checklist Improves Patient Education and Captures Discharge Process Errors. *Quality Management in Health Care*, 27(2), 63–68. https://doi.org/10.1097/QMH.0000000000000168.

Ghazzawi, A., Kuziemsky, C., O'Sullivan, T. (2016). Using a complex adaptive system lens to understand family caregiving experiences navigating the stroke rehabilitation system. *BMC Health Services Research*, 16(1), 538.

Gür, S. B. E. (2015). Turkish Validity and Reliability Study of the Satis-Stroke Questionnaire. Master Thesis; Dokuz Eylul University Faculty of Medicine, İzmir, 3-4, 44-48.

Hall, J. F., Crocker, T. F., Clarke, D. J., & Forster, A. (2019). Supporting carers of stroke survivors to reduce carer burden: development of the Preparing is Caring intervention using Intervention Mapping. *BMC Public Health*, 19(1), 1408. https://doi.org/10.1186/s12889-019-7615-2

He, L., Wang, J., Wang, F., Wang, L., Liu, Y., Zhou, F., & Xu, F. (2023). Depression status and functional outcome of patients with ischemic stroke and the impact on caregivers living in Chengdu: a cross-sectional study. *Frontiers in Psychiatry*, 14, 1166273. https://doi.org/10.3389/fpsyt.2023.1166273

Heiberger, C. J., Busch, C., Chandler, J., Rance, K., Montieth, B., Hanscom, J., Sandhu, G., & Sandhu, D. (2020). Caregiver's Recall of Stroke Discharge Education Exceeds Patients and Is Associated with Greater Satisfaction. *Journal of Patient Experience*, 7(5), 796–800. https://doi.org/10.1177/2374373519893201

Henriksson, A., & Årestedt, K. (2013). Exploring factors and caregiver outcomes associated with feelings of preparedness for caregiving in family caregivers in palliative care: a correlational, cross-sectional study. *Palliative Medicine*, 27(7), 639–646. https://doi.org/10.1177/0269216313486954.

Holm, M., Årestedt, K., Carlander, I., Fürst, C. J., Wengström, Y., Öhlen, J., & Alvariza, A. (2016). Short-term and long-term effects of a psycho-educational group intervention for family caregivers in palliative home care - results from a randomized control trial. *Psycho-oncology*, 25(7), 795–802. https://doi.org/10.1002/pon.4004.

Hu, R., Gu, B., Tan, Q., Xiao, K., Li, X., Cao, X., Song, T., & Jiang, X. (2020). The effects of a transitional care program on discharge readiness, transitional care quality, health services utilization and satisfaction among Chinese kidney transplant recipients: A randomized controlled trial. *International Journal of Nursing Studies*, 110, 103700. https://doi.org/10.1016/j.ijnurstu.2020.103700.

Kabita, K., & Ajish, S. (2016). Evidence based nursing care for an acute stroke: Theoretical Study. The Degree Programme of Nursing, Yrkeshögskolan novia, Vaasa, 19-22.

Kankaya, H., & Karadakovan, A. (2017). Yaşlı Bireylerde Günlük Yaşam Aktivite Düzeylerinin Yaşam Kalitesi ve Yaşam Doyumuna Etkisi. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi,* 6(4), 21-29.

Karaman, S., & Karadakovan, A. (2015). İnmeli Hastalara Bakım Veren Hasta Yakınlarının Bakıma Hazır Oluşluk Ölçeği Geçerlik ve Güvenirlik Çalışması. *Ege Uni. Hemşire. Fak. Derg*, 31(1), 1-10.

Küçükdeveci, A. A., Yavuzer, G., Tennant, A., Süldür, N., Sonel, B., & Arasil, T. (2000). Adaptation of the modified Barthel Index for use in physical medicine and rehabilitation in Turkey. *Scandinavian Journal of Rehabilitation Medicine*, 32(2), 87–92.

Krishnan, S., Hay, C. C., Pappadis, M. R., Deutsch, A., & Reistetter, T. A. (2019). Stroke Survivors' Perspectives on Post-Acute Rehabilitation Options, Goals, Satisfaction, and Transition to Home. *Journal of Neurologic Physical Therapy: JNPT*, 43(3), 160–167. https://doi.org/10.1097/NPT.0000000000000281.

LeLaurin, J. H., Lamba, A. H., Eliazar-Macke, N. D., Schmitzberger, M. K., Freytes, I. M., Dang, S., Vogel, W. B., Levy, C. E., Klanchar, S. A., Beyth, R. J., Shorr, R. I., & Uphold, C. R. (2020). Postdischarge Intervention for Stroke Caregivers: Protocol for a Randomized Controlled Trial. *JMIR Research Protocols*, 9(11), e21799. https://doi.org/10.2196/21799

Luther, B., Wilson, R. D., Kranz, C., & Krahulec, M. (2019). Discharge Processes: What Evidence Tells Us Is Most Effective. *Orthopedic Nursing*, 38(5), 328–333. https://doi.org/10.1097/NOR.0000000000000601.

Lutz, B. J., and Camicia, M. (2016). Supporting the needs of stroke caregivers across the care continuum. *JCOM*, 23(12), 557-566

Mahoney, F., Barthel, D. (1965). Functional evaluation: The Barthel Index. *Maryland State Medical Journal*, 14, 61-65. PMID: 14258950.

Merati-Fashi, F., Dalvandi, A., & Parsa Yekta, Z. (2022). Stroke Survivors and Their Family Caregivers' Experiences of Health Information Seeking: A Qualitative Study. *International Journal of Community Based Nursing and Midwifery*, 10(4), 269–278. https://doi.org/10.30476/IJCBNM.2022.94489.1997

Mohammadi, S., Zabolypour, S., Ghaffari, F., & Arazi, T. (2019). The Effect of Family Oriented Discharge Program on the Level of Preparedness for Care-giving and Stress Experienced by the Family of Stroke Survivors. *Iran Rehabil J*, 17(2), 113- 120. https://doi.org/ 10.32598/irj.17.2.113.

Mollaoğlu, M., Tuncay, Ö. F., & Fertelli, T.K. (2011). İnmeli Hasta Bakım Vericilerinde Bakım Yükü ve Etkileyen Faktörler. *Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi,* 4(3), 125-130.

Mou, H., & Chien, W. T. (2023). Psychosocial factors associated with coping of inpatient stroke survivors and family caregivers: A dyadic analysis. *Rehabilitation Psychology*, 10.1037/rep0000516. Advance online publication. https://doi.org/10.1037/rep0000516.

Orak, O. S., & Sezgin, S. (2015). Kanser Hastasına Bakım Veren Aile Bireylerinin Bakım Verme Yüklerinin Belirlenmesi. *Journal of Psychiatric Nursing/Psikiyatri Hemsireleri Derneği*, 6(1), 33-39.

Oosterveer, D. M., Mishre, R. R., van Oort, A., Bodde, K., & Aerden, L. A. (2017). Depression is an independent determinant of life satisfaction early after stroke. *Journal of Rehabilitation Medicine*, 49(3), 223–227. https://doi.org/10.2340/16501977-2199.

Parr, L. C., &Mielenz, T. J. (2023). Correlates of caregiver well-being: The National Study of Caregivers. *Front Public Health*, 10, 1059164. doi: 10.3389/fpubh.2022.1059164. PMID: 36703814; PMCID: PMC9871917.

Pitthayapong, S., Thiangtam, W., Powwattana, A., Leelacharas, S., & Waters, C. M. (2017). A Community Based Program for Family Caregivers for Post Stroke Survivors in Thailand. *Asian Nursing Research*, 11(2), 150–157. https://doi.org/10.1016/j.anr.2017.05.009.

Rodgers, H., & Price, C. (2017). Stroke unit care, inpatient rehabilitation and early supported discharge. *Clin Med* (Lond), 17(2), 173-177. doi: 10.7861/clinmedicine.17-2-173. PMID: 28365632; PMCID: PMC6297619.

Sajwani-Merchant, Z., Behan, D., Swank, C., & Daniel, K. (2023). Caregiver experiences of social support following stroke. *Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association*, 32(9), 107253. Advance online publication. https://doi.org/10.1016/j.jstrokecerebrovasdis.2023.107253

Shyu, Y. I., Chen, M. C., Chen, S. T., Wang, H. P., & Shao, J. H. (2008). A family caregiver-oriented discharge-planning program for older stroke patients and their family caregivers. *Journal of Clinical Nursing*, 17(18), 2497–2508. https://doi.org/10.1111/j.1365-2702.2008.02450.x.

Smith, D. L. (2015). Does type of disability and participation in rehabilitation affect satisfaction of stroke survivors? Results from the 2013 Behavioral Risk Surveillance System (BRFSS). *Disability and Health Journal*, 8(4), 557–563. https://doi.org/10.1016/j.dhjo.2015.05.001.

Thrift, A. G., Thayabaranathan, T., Howard, G., Howard, V. J., Rothwell, P. M., Feigin, V. L., Norrving, B., Donnan, G. A., & Cadilhac, D. A. (2017). Global stroke statistics. *International Journal of Stroke: Official Journal of the International Stroke Society*, 12(1), 13–32. https://doi.org/10.1177/1747493016676285.

Tsai, Y. H., Lou, M. F., Feng, T. H., Chu, T. L., Chen, Y. J., & Liu, H. E. (2018). Mediating effects of burden on quality of life for caregivers of first-time stroke patients discharged from the hospital within one year. *BMC Neurology*, 18(1), 50. https://doi.org/10.1186/s12883-018-1057-9.

TUIK, (2022). Death and Cause of Death Statistics. Available at: https://data.tuik.gov.tr/Bulten/Index?p=Olum-ve-Olum-Nedeni-Istatistikleri-2022-49679. 8, 2023.

Wang, J., Li, D., Zhao, L., Li, D., Huang, M., & Wang, Y. (2023). Life satisfaction and its influencing factors for bedridden patients with stroke. *Journal of Stroke and Cerebrovascular Diseases: The Official Journal of National Stroke Association*, 32(9), 107254. Advance online publication. https://doi.org/10.1016/j.jstrokecerebrovasdis.2023.107254.

Verheyden, GSAF., Weerdesteyn, V., Pickering, RM., Kunkel, D., Lennon, S., Geurts, ACH., & Ashburn, A. (2018). Interventions for preventing falls in people after stroke. *Cochrane Database of Systematic Reviews*, 5(5), 25-29.

Yalçın, S., Arpa, Y., Cengiz, A., & Doğan, S. (2015). A Comparison of Nurses' and Patients' Opinions About Discharge Education Needs. *Hemşirelikte Eğitim ve Araştırma Dergisi*, 12 (3), 204-209.