

Evaluation of Self-Care and Self-Efficacy in Patients Experiencing Phantom Pain After Amputation

Hamdiye Banu Katran¹, Nuray Akyüz², Nurgül Arpag³, Sevgi Gür⁴

¹ Marmara University, Faculty of Health Sciences, Department of Surgical Diseases Nursing, Istanbul, Türkiye.

² Istanbul University-Cerrahpasa Florence Nightingale Faculty of Nursing, Department of Surgical Diseases Nursing, Istanbul, Türkiye.

³ Istanbul Atlas University, Faculty of Health Sciences, Department of Nursing, Istanbul, Türkiye.

⁴ Selçuk University, Faculty of Nursing, Department of Surgical Diseases Nursing, Konya, Türkiye.

Correspondence Author: Hamdiye Banu Katran

E-mail: banu.katran@marmara.edu.tr

Received: 18.04.2022

Accepted: 11.04.2024

ABSTRACT

Objective: This study was conducted with a comparative and descriptive research design to evaluate the self-care agency and self-efficacy of patients who experienced phantom pain after limb amputation.

Method: The population of the study consisted of 54 patients who underwent limb amputation operations in a university hospital in Istanbul between 1 January 2018 and 1 January 2020. Sample selection was not made, all patients included the population were reached by phone after their discharge. When the data were collected, one patient was excluded due to being younger than 18 years of age, 12 patients died, 9 patients had stump pain, and the study was completed with 32 patients. Data were collected using a "Personal Information Form", the Visual Analog Scale, the Exercise of Self-Care Agency Scale and the Self-Efficacy Scale.

Results: The mean Exercise of Self-Care Agency Scale score of the patients was found to be 79.37±21.55. Their mean total Self-Efficacy score was 70.00±16.10. There was no statistically significant relationship between postoperative phantom pain and scale scores.

Conclusion: It was determined that patients who experienced phantom pain after amputation had moderate self-care agency and perceived self-efficacy levels.

Keywords: Amputation, phantom limb pain, self-care, self-efficacy.

1. INTRODUCTION

Amputation is the procedure of removing a damaged extremity that cannot be corrected, by surgically cutting it with its bone out of the body (1,2). Amputation can affect the bio-physical, psychological, and socio-economic dimensions of the individual's life, causing problems in activities of daily living and therefore a decrease in self-care agency. Self-care refers to activities initiated and performed to improve health, protect one's life, health, and well-being, prevent the deterioration of one's health, and maintain one's health (2).

Self-care agency (SCA) is the individual's ability to perform self-care related activities (3,4). According to Orem, SCA is "a multidimensional concept that includes having the necessary motivation, idea generation capacity, energy, and knowledge to carry out self-care activities that maintain health and well-being" (5). To lead a satisfying life, awareness of health-related needs to be strengthened should be raised in people, and behaviors and skills that will enable them to use their health-related skills to the fullest should be developed (6,7). Nurses, who identify the inadequacies in the self-care of

individuals, aim to help patients or healthy individuals meet their self-care needs (4).

As defined by Senemoğlu, self-efficacy is one of the cognitive perception factors that affect an individual's behaviors (8,9). Self-efficacy was expressed by Bandura in 1977 as a concept that affects behavior. According to Bandura, "self-efficacy is the individual's own judgment of their capacity to organize and successfully perform the activities necessary to demonstrate a certain performance." In other words, self-efficacy is an individual's judgment and belief about their own regarding the extent to which they can be successful in overcoming difficult situations that they may encounter in the future (8). It is important that nurses, who aim to protect individuals from ill-advised behaviors and help them adopt positive behaviors that improve and maintain health, control the individual's health-related behaviors and have knowledge about this concept (10-12).

Problems that develop in individuals after amputation cause insufficiency in their activities of daily living from different perspective, causing people to become fully or partially dependent in the physical, financial, and social sense, thus affecting their self-care agency and self-efficacy (13). “Phantom Feeling (PF)”, which is defined as feeling as if the amputated extremity is still in place, and “Phantom Pain (PP)”, which is seen as pain in the non-existing extremity, are chronic problems that are frequently encountered after amputations (14). The incidence of PP after amputation is reported to be in the range of 49-83% (15,16). The discomforts that the patient may experience during or after the operation or the procedures to be performed (e.g., pain, nausea, vomiting, hypothermia, anxiety), including the experience of PP, which is a very common problem, may be the main reason for a decrease in their self-care agency and self-efficacy levels. A nurse should implement all necessary nursing interventions to reduce or resolve the situations that will cause discomfort in the patient before and after each procedure (17).

2. METHODS

2.1. Research Design and Participants

This study was conducted with a descriptive design to improve the quality of patient care by evaluating self-care agency and self-efficacy in patients who underwent amputation operations and experienced PP, guide nursing interventions, and direct future research on the subject in the field of nursing.

The population of the study consisted of 54 Turkish patients who underwent limb amputation operation in the orthopedics and traumatology clinic of a university hospital in Istanbul between 1 January 2018 and 1 January 2020.

Sample selection was not performed because the number of patients that could be reached was very small. All patients who made up the population were called by phone after their discharge. However, the study was completed with 32 patients between 1 March and 30 April 2020, when the data were collected, because one patient was younger than 18 years old, 12 patients died, and 9 patients had stump pain.

2.1.1. Inclusion criteria: Patients aged 18 years or older, who underwent limb amputation operations between 1 January 2018 and 1 January 2020, experienced PP, and were oriented to person, place, and time were included.

2.1.2. Exclusion criteria: In differentiating PP from stump pain, the location and nature of the patient’s pain were questioned. The pain of the patients who described it as a sharp, burning, electric shock-like pain localized in the remaining limb, superficially in the deep tissues at the incision line, or spread to the entire remaining limb, was considered stump pain, and such cases were excluded from the study (18,19).

2.2. Data Collection

The data of the study were collected with a “Personal Information Form”, the “Visual Analog Scale”, the “Exercise of Self-Care Agency Scale”, and the “Self-Efficacy Scale”.

2.2.1. Personal Information Form: This form included 21 questions prepared by the researchers in light of the relevant literature, to collect information on the introductory characteristics of the patients and their characteristics related to their disease and surgery. The questioned individual characteristics included sex, age, marital status, educational status, income level, chronic illness, medication use, companion status, and habits. The features of PP and surgery that were questioned included the status of pain before and after the surgery. Questions inquiring about the location and severity of postoperative pain and the use of analgesics were also included among these 21 questions (1,11,13-17).

2.2.2. Visual Analog Scale (VAS): VAS for Pain is a one-dimensional individual pain assessment method and is usually in the form of a 10 cm long line, with “No Pain-Zero (0)” at one end and “Unbearable Pain-Ten (10)” at the other end. It can be used as a horizontal or vertical ruler. It is an easy-to-use scale to evaluate response to treatment and pain (20,21).

2.2.3. Exercise of Self-Care Agency Scale (ESCA): ESCA is a scale developed by Kearney and Fleischer in 1979 and used to determine people’s ability to take care of themselves (22). It is a 5-point Likert-type scale consisting of 35 items, the validity and reliability study of which was conducted by Nahcivan in Turkey in 1994, focusing on the self-evaluation of individuals regarding their involvement in self-care activities (6). Each item is scored from 0 to 4. The maximum possible score is 140, and it is accepted that higher scores correspond to higher levels of self-care agency. The scale is based on 4 features. These are an active versus a passive response to situations, motivation, knowledge and information seeking, and self-worth, self-esteem, and self-concept of the individual. In the study, the Cronbach’s alpha coefficient of the scale was 0.94, and it was determined to be a highly reliable scale.

2.2.4. Self-Efficacy Scale (SES): SES is a Likert-type scale that measures an individual’s effectiveness/competence, it consists of 23 items, and each of its items is scored between 1 and 5. The validity and reliability of the Turkish version of the scale developed by Sherer et al. (1982) (23) were tested by Gözümlü and Aksayan in 1999. The minimum and maximum possible scores on the scale are 23 and 115. A high total score indicates a high level of self-efficacy perceived by the respondent (24). In the study, the Cronbach’s alpha value of the total scale was found to be 0.95, and it was determined to be a highly reliable scale.

Data were collected between 1 March and 30 April 2020. The patients were reached by phone. Verbal consent was obtained by the researcher. Written permission could not be obtained

due to the ongoing COVID-19 pandemic restrictions. Filling out the forms took about 15-20 minutes for each patient.

2.3. Data Analysis

The NCSS (Number Cruncher Statistical System, Kaysville, Utah, USA) program was used for statistical analyses. Descriptive statistical methods (mean, standard deviation, median, frequency, ratio, minimum, maximum) were used to analyze the data. The conformity of the quantitative data to normal distribution was tested with the Kolmogorov-Smirnov test, the Shapiro-Wilk test, and graphical evaluations. The Mann-Whitney U test was used in the comparisons of two groups of data that did not show normal distribution. The Wilcoxon Signed-Rank test was used for intragroup comparisons. Spearman's Correlation Analysis was used to evaluate the relationships between variables. The threshold for statistical significance was accepted as $p < .05$.

2.4. Ethical Considerations

Before starting the study, ethical approval from Istanbul University-Cerrahpaşa Social Sciences and Humanities Ethics Committee (Decision No: 2019/159) and institutional permission from the relevant hospital (Date: 06/04/2020 and No: 51988) were obtained. The individuals participating in the study were informed about the study, and their verbal consent was obtained. For the use of the scales, permission was obtained via e-mail from the authors who conducted the validity and reliability studies of the scales.

2.5. Limitations

The limitation of the study was that it was conducted as a descriptive study with 32 patients and a single group that could be reached.

2.6. Strengths

The strengths of the study are that there is no other study in the literature on self-care and self-efficacy in patients experiencing PP and that it is the first study on this subject.

3. RESULTS

The distribution of the descriptive characteristics of the patients who were included in the study is shown in Table 1. It was determined that 81.2% (n=26) of the patients had Diabetes Mellitus (DM), and 37.5% (n=12) had chronic diseases other than DM. It was found that 81.2% (n=26) of the amputation indications was DM, and 18.8% (n=6) were conditions other than DM. While the time since the amputation operations of the patients was 0-12 months in 28.2%, and it was 13-24 months in 71.8%. Among the amputated limbs of the patients, 62.5% (n=20) were below the knee, 31.3% (n=10) were above the knee, and 6.2% (n=2) were below or above the elbow. Preoperative pain was experienced by 84.4%

(n=27) of the patients, while 100% (n=32) had postoperative pain. According to their statements, 96.9% (n=31) had PF after their operation. Painkillers were used by 65.6% (n=21) of the patients (Table 2). There was no statistically significant difference between the postoperative PP scores of the patients based on the presence of preoperative pain among them ($p > .05$) (Table 1).

Table 1. Distribution of descriptive features, diseases and distributions regarding amputation (n=32)

		Bottom-Top	Avg±SD
Age (years)		38-87	62,94±12,65
		n	%
Gender	Female	8	25.0
	Male	24	75.0
Marital Status	Married	24	75.0
	Single	8	25.0
Education Status	Primary school and below	16	50.0
	Secondary school and above	16	50.0
Working Status	Not working	25	78.1
	Working	7	21.9
Diabetes mellitus	No	6	18.8
	Yes	26	81.2
Other chronic diseases	No	20	62.5
	Yes	12	37.5
Time after amputation	0-12 months	9	28.2
	13-24 months	23	71.8
Amputation cause	Diabetes	26	81.2
	Non-diabetes causes	6	18.8
Amputated limb	Under the knees	20	62.5
	Above knee	10	31.3
	Below and above the elbow	2	6.2
Preoperative pain	No	5	15.6
	Yes	27	84.4
Post-surgical phantom feeling	No	1	3.1
	Yes	31	96.9
Post-surgical phantom pain	Yes	32	100.0
Use of painkillers	No	11	34.4
	Yes	21	65.6

Avg: Avarage; SD:Standard Deviation

The total ESCA scores of the patients ranged from 52 to 122, with a mean score of 79.37±21.55. The Cronbach's alpha internal consistency coefficient of the scale based on the responses of the patients given to the scale items was 0.94, and the scale was found to have high validity and reliability.

The mean SES scores of the patients were 24.68±6.14 for starting the behavior, 20.77±3.63 for maintaining the behavior, 16.25±5.51 for completing the behavior, and 8.87±2.28 for struggling with obstacles, whereas their mean total SES score was 70.00±16.10. The Cronbach's alpha internal consistency

coefficient of the total scale in this study was found to be 0.95, and it was determined to be a highly reliable scale (Table 2).

Table 2: Self-efficacy scale scores and Cronbach’s alpha internal consistency coefficients

Factors	Number of items	Bottom-Top	Avg±SD	Alpha value
Factor-1: Starting the behavior	8	15-35	24.68±6.14	0.728
Factor-2: Maintaining the behavior	7	14-26	20.77±3.63	0.815
Factor-3: Complete the behavior	5	8-25	16.25±5.51	0.910
Factor-4: Struggling with obstacles	3	4-13	8.87±2.28	0.554
TOTAL: Self-Efficacy	23	47-98	70.00±16.10	0.953

Avg: Avarage; SD:Standard Deviation

The total ESCA scores of the patients were significantly related to their behavior initiation scores ($r = .737$), their behavior completion scores ($r = .754$), their struggle with obstacles scores ($r = .783$), and their total SES scores ($r = .752$) ($p < .001$; $p < .01$). A positive, moderate, and statistically significant correlation was determined between the total ESCA scores of the patients and their SES behavior maintenance subscale scores ($r = .602$; $p = .001$; $p < 0.01$). There was no statistically significant correlation between the total ESCA scores of the patients and their preoperative pain or postoperative PP scores ($p > .05$). There was also no statistically significant correlation between the scores of the patients on the starting the behavior, maintaining the behavior, completing the behavior, and struggling with obstacles subscales and their preoperative pain or postoperative PP scores ($p > .05$). Moreover, there was no statistically significant relationship between the total SES scores of the patients and their preoperative pain or postoperative PP scores ($p > .05$) (Table 3).

Table 3: Relationship between scales

		Self-efficacy					Pain		
		Self-care Agency Total	Starting the behavior	Keeping the behavior	Completing the behavior	Struggling with obstacles	Total	Preoperative	Postoperative PP
Self-care Agency Total	r	1.000	0.737	0.602	0.754	0.783	0.752	-0.147	-0.230
	p	-	.001**	.001**	.001**	.001**	.001**	.421	.205
Starting the behavior	r	-	1.000	0.816	0.876	0.781	0.952	-0.111	-0.169
	p	-	-	.001**	.001**	.001**	.001**	.544	.354
Keeping the behavior	r	-	-	1.000	0.840	0.638	0.890	-0.131	0.122
	p	-	-	-	.001**	.001**	.001**	.483	.512
Completing the behavior	r	-	-	-	1.000	0.746	0.950	-0.193	-0.055
	p	-	-	-	-	.001**	.001**	.289	.765
Struggling with obstacles	r	-	-	-	-	1.000	0.821	-0.320	-0.266
	p	-	-	-	-	-	.001**	.074	.141
Self-efficacy total	r	-	-	-	-	-	1.000	-0.242	-0.160
	p	-	-	-	-	-	-	.189	.390
Preoperative Pain	r	-	-	-	-	-	-	1.000	0.581
	p	-	-	-	-	-	-	-	.001**

r: Spearman’s Correlation Coefficient **p< .01 PP: Phantom Pain

The preoperative pain and postoperative PP scores of the patients were determined to not vary significantly in relation to their sex or age ($p > .05$). There was no significant difference between the male and female patients in terms of the degrees of change in their postoperative PP scores compared to their preoperative pain scores ($p > .05$).

Furthermore, the education levels of the patients were not found to be significantly associated with their preoperative pain or postoperative PP scores ($p > .05$). However, the postoperative PP scores of the patients who were primary school graduates increased significantly compared to their preoperative pain scores ($p = .019$; $p < .05$).

4. DISCUSSION

In the relevant literature, there is no other study about the self-care agency and self-efficacy levels of amputation patients who experience PP. In this study, which was conducted to evaluate the self-care agency and self-efficacy of patients who experienced PP after limb amputation, PP was found in 32 (76.2%) of 42 patients who underwent limb amputation in the specified dates. In 96.9% ($n=31$) of the patients, PF, which felt like the amputated limb was still in place after the operation, was also observed. Alsancak and Altınkaynak reported PP in 7 (23%) and PF in 16 (53%) of 30 patients who underwent lower extremity amputation (25).

In a study conducted with 147 individuals with lower and upper extremity amputations, it was reported that 60% of upper extremity amputees had PP, 70.7% had PF, 65.8% of lower extremity amputees had PP, and 75.6% had PF (26). In another study in which 5700 amputation cases were evaluated, it was stated that the prevalence of PP was around 75% (27). It can be thought that the differences in the incidence of PP in the literature are probably due to differences in the times when these studies were carried out, the countries where they conducted, and the methods used during data collection, as well as the low total number of individuals who experienced PP, which was one of the limitations of this study.

Approximately 90% of amputations are performed due to peripheral vascular diseases. Approximately half of the amputations performed for peripheral vascular diseases are in diabetic patients (28). Lower extremity amputations are frequently performed especially for diabetic and vascular reasons, and they are among the operations in which post-surgical pain is the most common (29). Walker stated that in individuals with heart disease, the duration of the disease is important, and newly diagnosed patients have more positive health beliefs than patients who are diagnosed earlier in their lives (30). In the study conducted by Kara and Feşçi with individuals with Type 1 DM, it was reported that as the duration of the disease increased, self-care agency decreased (31). In this study, it was determined that 81.2% ($n=26$) of the patients had DM, and 37.5% ($n=12$) had chronic diseases other than DM. This explained the more frequent PP

experience in patients who were amputated due to diabetes, similarly to other studies in the literature.

It was reported that approximately 85% of all amputations are performed on the lower extremities (28,32). Nutritional disorders due to vascular causes are mostly seen in the lower extremities (30). In this study, 62.5% ($n=20$) of the amputation cases were below the knee, 31.3% ($n=10$) were above the knee, and 6.2% ($n=2$) were below or above the elbow. Consistent with the literature, most of the patients had amputations at different levels in their lower extremities.

Preoperative pain was detected in 84.4% ($n=27$) of the patients who were included in this study, and postoperative PP was detected in 100% ($n=32$). The rate of patients who used painkillers was 65.6% ($n=21$). The relevance of the presence, severity, or duration of pain before surgery to PP is controversial. Severe and especially long-lasting pain before amputation surgery is considered a risk factor for the chronicity of pain (33). In a study involving amputations performed due to vascular diseases, it was noted that while the frequency of preoperative pain was 80%, chronic PP remained at around 60%, and the duration of pain, rather than the presence of pain, was a risk factor for chronicity (34). In a larger series of lower extremity amputations, there was no significant relationship between the presence of preoperative pain and its chronicity (35). In this study, in parallel with the literature, no significant relationship was found between the presence of preoperative pain and the presence of postoperative PP, and it is thought that the usage of painkillers by most of the included patients may have affected the results.

Gül et al. evaluated self-care agency in patients who underwent kidney transplantation, and the mean SCA score of their patients was 108.9 ± 20.1 (36). In their study which included hypertensive patients, Türkcan Düzöz reported a mean SCA score of 100.04 ± 17.62 (37). In a study conducted by Üstündağ and Zengin to determine the self-care agency of patients with head and neck cancers, 38% of the patients were found to have a moderate SCA score of 80.88 ± 11.51 , and 62% were found to have a high score of 107.51 ± 12.05 (38). In this study, the mean total ESCA score of the patients was determined as 79.37 ± 21.55 . Similar to the literature, the self-care agency of the patients who experienced PP was found to be moderate.

In the study conducted by Üstündağ and Zengin, in which patients with head and neck cancers were included, no significant difference was observed between age groups in terms of their mean scores of self-care agency (38). Türkcan Düzöz stated that the highest self-care agency score was in the group aged 40 and below, and the lowest score was in the group aged 61 and above (37). Similarly, no significant relationship was found between age groups and self-care agency in this study.

Üstündağ and Zengin examined the distribution of the scale scores of patients according to sex and determined that the SCA scores of the male patients (102.62 ± 17.38) were higher than

those of the female patients (89.86 ± 15.41), and the difference between their mean scores was statistically significant (38). The lack of a statistically significant difference between ESCA scores according to sex in this study could have been due to the heterogeneity of the male-female distribution.

It was reported by Üstündağ and Zengin that the self-care agency scores of patients increased as their education levels increased, and this relationship was statistically significant (38). Türkcan Düzöz observed that as the education levels of patients increased, their self-care agency scores also increased (37). In the study conducted by Alemdar and Çınar Pakyüz with hemodialysis patients, it was determined that the self-care agency scores of the patients differed significantly based on their educational status (39). It can be stated that the lack of a significant relationship between education levels and self-care agency in this study was due to the fact that the study was conducted with a small number of people, which was also one of the limitations of the study.

Yılmaz et al. determined in their study on self-efficacy regarding bowel preparation before colonoscopy that the general perceived self-efficacy levels of the patients were moderate, and there was no statistically significant relationship between scale scores and compliance with the pre-colonoscopy preparation instructions (40). In different study, it has been reported that high self-efficacy levels increase disease adjustment (41). In this study, the mean total SES score of the patients was determined as 70.00 ± 16.10 . The fact that there was no significant relationship between self-efficacy levels and PP scores suggested that the result on the evaluated variable was due to a chronic condition.

Vatansever and Ünsar reported that there was no statistically significant difference between male and female patients with essential hypertension in terms of their self-efficacy levels, and there was also no significant difference in medication adherence scores based on the educational statuses of the patients (41).

In the study conducted by Karasawa et al. with disabled patients who had chronic pain, chronic pain and self-efficacy scores were found to be independent of the severity of pain, but they had statistically significant relationships to a decrease in self-efficacy scores and disability status (42). These findings provide an idea about the importance of relieving chronic pain, strengthening self-efficacy, and promoting the sense of independence in the individual. The absence of a significant relationship between self-efficacy levels and PP in this study can be interpreted as that experiencing phantom limb pain does not have an effect on self-efficacy.

Studies on self-efficacy have shown that patients with high self-efficacy recover in a shorter time, and their quality-of-life increases (40-42). PP is also a form of chronic pain. It is a serious problem that is frequently seen, especially after amputation, and it hinders the daily activities of individuals. Since there is no other study evaluating PP in addition to self-care agency and self-efficacy in the literature, no generalization can be made about the self-care agency and self-efficacy levels of individuals who experience PP.

Tsay and Healstead and Song et al. stated that patients with high self-care agency also had high self-efficacy, and there was a positive relationship between these two variables (43,44). In their study that included hemodialysis patients, Lew and Owen reported that positive relationships between self-efficacy, self-care, and quality of life (45). In this study, a positive, statistically significant, and moderate correlation was determined between the mean total ESCA scores of the patients and their score on the maintaining the behavior subscale, which is a dimension of SES ($r = .602$; $p = .001$; $p < .01$). The findings of this study were compatible with the information in the literature.

5. CONCLUSION

In this descriptive study, it was determined that patients who experienced PP after amputation had moderate self-care agency and perceived self-efficacy levels. Since generalization cannot be made in line with the results of this study, it is recommended to conduct comparative and experimental studies with larger samples and in different cultures to examine the self-care agency and self-efficacy of patients who experience PP.

Acknowledgements: Thank you for supporting the participants in this study. This article was presented as an oral presentation at the 4th International 12th National Congress on Turkish Surgery and Operating Room Nursing, and its summary was published in the congress book. 13-16 Oct 2022, Antalya, Turkey. (S-128 Amputasyon Sonrası Fantom Ağrısı Deneyimleyen Hastalarda Özbakım Gücü ve Öz Yeterliğin Değerlendirilmesi, s.751.)

Funding: The author(s) received no financial support for the research.

Conflicts of interest: The authors declare that they have no conflict of interest.

Ethics Committee Approval: This study was approved by Ethics committee of Istanbul University-Cerrahpaşa Social and Humanities Research Ethics Committee 07.01.2020 and Ethics Committee Decision number 2019/159.

Peer-review: Externally peer-reviewed.

Author Contributions:

Research idea: HBK, NAK

Design of the study: HBK, NAK

Acquisition of data for the study: HBK, NAR, SG

Analysis of data for the study: HBK, NAK, NAR, SG

Interpretation of data for the study: HBK, NAR, SG

Drafting the manuscript: HBK, NAK, NAR, SG

Revising it critically for important intellectual content: HBK, NAK

Final approval of the version to be published: HBK, NAK, NAR, SG

REFERENCES

- [1] Sesli E, Karaaslan AA, Öztürk AM. Amputasyon nedenleri. Türkiye Klinikleri J Orthop & Traumatol-Special Topics. 2011;4(4):8-14. (Turkish)
- [2] Chen IH, Chi MJ. Effects of self-care behaviors on medical utilization of the elderly with chronic diseases-A representative sample study. Arch Gerontol Geriatr. 2015;60:478-485. DOI: 10.1016/j.archger.2015.01.014.

- [3] Kaya H. Özbakım değerlendirme ölçeğinin (ÖBDÖ) dil eşdeğerliği ve güvenilirliği. *Hemşirelik Bülteni* 2005;13(55):139-148. (Turkish)
- [4] Özkan S, Durna Z. İnsüline bağımlı diyabetli hastalarda özbakım gücünün belirlenmesi. *Ege Üniv Hem YO Derg* 2006;22:121-125. (Turkish)
- [5] Dereli Yılmaz S, Kızılkaya Beji N. Gebelikte özbakım gücünün değerlendirilmesi. *Genel Tıp Derg.* 2010;20(4):137-142. (Turkish)
- [6] Nahcivan N, Tuncel N. Sağlıklı gençlerde özbakım gücü ve aile ortamının etkisi. *Hemşirelik Bülteni* 1999;12(45):49-60. (Turkish)
- [7] Webber D, Guo Z, Mann S. Self-care in health: We can define it, but should we also measure it?. *SelfCare.* 2013;4(5):101-106.
- [8] Senemoğlu N. Gelişim, öğrenme ve öğretim, kuramdan uygulamaya. *Gazi Kitabevi, Ankara, 2001; pp.235-236.* (Turkish)
- [9] Schwarzer R, Fuchs R. Self-efficacy and health behaviours. In M. Conner & P. Norman (Eds.), *Predicting health behaviour: Research and practice with social cognition models* Open University Press.1996; pp.163-196.
- [10] Van der Ven NCW, Weinger KYJ, Pouwer F, Ader H, Van der Ploeg HM, Snoek FJ. The confidence in diabetes self-care scale. *Diabetes Care* 2003;26(3):713-718. DOI: 10.2337/diacare.26.3.713
- [11] Uğurlu SB. Postoperative neuropsychiatric system. *Türkiye Klinikleri J Surg Med Sci.* 2007;3(27):23-28.
- [12] Krenziscek D, Wilson L, Newhouse R, Mamaril M, Kane HL. Clinical evaluation of the ASPAN pain and comfort clinical guideline. *J Perianesth Nurs.* 2004;19(3):150-163. DOI: 10.1016/j.jopan.2004.03.003. PMID: 15195274.
- [13] Şener G, Erbağcı F. Protezler. H.Ü. Fizik Tedavi ve Rehabilitasyon YO Yayınları Ankara, 2001; pp:239-92. (Turkish)
- [14] Yıldırım M, Kanan N. The effect of mirror therapy on the management of phantom limb pain. *Agri* 2016;28(3):127-134. DOI: 10.5505/agri.2016.48343
- [15] Kooijman CM, Dijkstra PU, Geertzen JHB, Elzinga A, van der Schans CP. Phantom pain and phantom sensations in upper limb amputees: An epidemiological study. *Pain* 2000;87(1):33-41. DOI: 10.1016/S0304-3959(00)00264-5. PMID: 10863043.
- [16] Dijkstra PU, Geertzen JHB, Stewart R, van der Schans CP. Phantom pain and risk factors: A multivariate analysis. *J Pain Symptom Manage.* 2002;24(6):578-585. DOI: 10.1016/S0885-3924(02)00538-9. PMID: 12551807.
- [17] Yılmaz E, Çeçen D, Kızıl Toğaç H, Mutlu S, Kara H, Aslan A. Ameliyat sürecindeki hastaların konfor düzeyleri ve hemşirelik bakımları. *CBU-SBED.* 2018;5(1):3-9. (Turkish)
- [18] Raichle KA, Hanley MA, Molton I, Kadel NJ, Campbell K, Phelps E, Ehde D, Smith DG. Prosthesis use in persons with lower – and upper-limb amputation. *J Rehabil Res Dev.* 2008;45(7):961-972. DOI: 10.1682/jrrd.2007.09.0151. PMID: 19165686; PMCID: PMC2743731.
- [19] Ephraim PL, Wegener ST, MacKenzie EJ, Dillingham TR, Pezzin LE. Phantom pain, residual limb pain, and back pain in amputees: Results of a national survey. *Archives of physical medicine and rehabilitation* 2005;86(10):1910-1919. DOI: 10.1016/j.apmr.2005.03.031
- [20] Besser A, Flett GL, Hewitt PL. Perfectionism, cognition, and affect in response to performance failure vs. success. *Journal of Rational-Emotive & Cognitive-Behavior Therapy* 2004;22:297-324. DOI: 10.1023/B:JORE.000.004.7313.35872.5c
- [21] Besser A, Priel B. Emotional responses to a romantic partner's imaginary rejection: The roles of attachment anxiety, covert narcissism, and self-evaluation. *J Pers.* 2009;77(1):287-325. DOI: 10.1111/j.1467-6494.2008.00546.x. Epub 2008 Dec 10. PMID: 19076997.
- [22] Kearney BY, Fleischer BJ. Development of an instrument to measure exercise of self-care agency. *Res Nurs Health* 1979;2(1):25-34.
- [23] Sherer M, Maddux JE, Mercandante B, Prentice-dunn S, Jacobs B, Rogers RW. The Self-efficacy scale: Construction and validation. *Psychological Reports* 1982;51(2):663-71. DOI: 10.2466/pr0.1982.51.2.663.
- [24] Gözüm S, Aksayan S. Öz yeterlik ölçeğinin Türkçe formunun güvenilirlik ve geçerliliği. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi* 1999;2(1):21-34.
- [25] Alsancak S, Altınkaynak H. Fantom hissi, fantom ağrısı ve ağrılı güdük, Ankara Üniversitesi Dikimevi, Sağlık Hizmetleri Meslek Yüksekokulu Yıllığı 2003;4(1):21-24.
- [26] Uğur F, Akın A, Esmoğlu A, Doğru K, Örs S, Aydoğan H, Gülcü N, Boyacı A. Alt ve üst ekstremitte amputasyonlarının fantom ağrısı ve fantom ekstremitte hissi yönünden karşılaştırılması. *Ağrı* 2007;19(1):50-56. (Turkish)
- [27] Foell J, Bekrater-Bodmann R, Flor H, Cole J. Phantom limb pain after lower limb trauma: Origins and treatments: The International Journal of Lower Extremity Wounds 2011;10(4) 224-235. DOI: 10.1177/153.473.4611428730
- [28] Başal Ö. Amputasyonlar. *Derman Tıbbi Yayıncılık, 2015; pp.856-868.* (Turkish)
- [29] Ventham N, Heyburn P, Huston N. 374 prevalence of phantom limb pain in diabetic and non-diabetic leg amputees: A cross-sectional observational survey. *Eur J Pain Suppl.* 2010;4(1):106–107. DOI: 10.1016/S1754-3207(10)70379-5.
- [30] Lau-Walker M. Relationship between illness representation and self-efficacy. *J Adv Nurs* 2004;48(3):216-225. DOI: 10.1111/j.1365-2648.2004.03190.x. PMID: 15488035.
- [31] Kara B, Feşci H. Tip I diabet hastalarının özbakım gücünün incelenmesi, *Sendrom Dergisi* 2000;12(4):28-32. (Turkish)
- [32] Baykal YB, Yaman E, Burc H, Yorgancıgil H, Atay T, Yıldız M. Is scintigraphy a guideline method in determining amputation levels in diabetic foot? *J Am Podiatr Med Assoc.* 2014;104(3):227-232. DOI: 10.7547/0003-0538-104.3.227. PMID: 24901580.
- [33] Hanley MA, Jensen MP, Smith DG, Ehde DM, Edwards TW, and Robinson LR. Pre-amputation pain and acute pain predict chronic pain after lower extremity amputation. *J Pain.* 2007;8(2):102-109. DOI: 10.1016/j.jpain.2006.06.004.
- [34] Richardson C, Crawford K, Milnes K, Bouch E, Kulkarni J. A Clinical evaluation of postamputation phenomena including phantom limb pain after lower limb amputation in dysvascular patients. *Pain Management Nursing* 2015;16(4):561-569. DOI: 10.1016/j.pmn.2014.10.006
- [35] Bosmans JC, Geertzen JH, Post WJ, van der Schans CP, Dijkstra PU. Factors associated with phantom limb pain: A 31/2-year prospective study. *Clin Rehabil.* 2010;24(5):444-453. DOI: 10.1177/026.921.5509360645. PMID: 20442256.
- [36] Gül A, Üstündağ H, Zengin N. Böbrek nakli yapılan hastalarda özbakım gücünün değerlendirilmesi, *Genel Tıp Derg.* 2010;20(1):7-11. (Turkish)
- [37] Türkcan Düzöz G. Hipertansiyonlu hastalarda özbakım gücünün değerlendirilmesi. *Hemşirelik Forumu* 2005;8(2):22-26. (Turkish)

- [38] Üstündağ H, Zengin N. Baş Boyun kanseri nedeni ile cerrahi girişim geçiren hastaların özbakım gücünün değerlendirilmesi. Atatürk Üniversitesi Hemşirelik Yüksekokulu Dergisi 2008;11:63-68. (Turkish)
- [39] Alemdar H, Çınar Pakyüz S. Hemodiyaliz hastalarında özbakım gücünün yaşam kalitesine etkisinin değerlendirilmesi. Nefroloji Hemşireliği Dergisi 2015;10(2):19-30. (Turkish)
- [40] Yılmaz E, Aslan A, Ergin E. Kolonoskopi yapılacak hastalarda bağırsak temizliğine öz etkililik düzeylerinin etkisi. CBU-SBED. 2018;5(4):192-198. (Turkish)
- [41] Vatansever Ö, Ünsar S. Esansiyel hipertansiyonlu hastaların ilaç tedavisine uyum/öz etkililik düzeylerinin ve etkileyen faktörlerin belirlenmesi. Türk Kardiyoloji Derneği Kardiyovasküler Hemşirelik Dergisi 2014;5(8):66-74. DOI: 10.5543/khd.2014.008 (Turkish)
- [42] Karasawa Y, Yamada K, Iseki M, Yamaguchi M, Murakami Y, Tamagawa T, Kadowaki F, Hamaoka S, Ishii T, Kawai A, Shinohara H, Yamaguchi K, Inada E. Association between change in self-efficacy and reduction in disability among patients with chronic pain. PLoS ONE. 2019;14(4):e0215404. DOI: 10.1371/journal.pone.0215404.
- [43] Tsay SL, Healstead M. Self-care, self-efficacy, depression, and quality of life among patients receiving hemodialysis in Taiwan. Int J Nurs Stud. 2002;39(3):245-251. DOI: 10.1016/s0020-7489(01)00030-x.
- [44] Song MR, Kim MJ, Lee ME, Lee IB, Shu MR. A study on the correlation between self-efficacy and self-care in hemodialysis patients. Journal of Korean Academy of Nursing 1999;29(3):563-575. DOI: 10.4040/jkan.1999.29.3.563
- [45] Lew EL, Owen SV. A measure of self – care, self efficacy. Res Nurs Health. 1996;19(5):421-429. DOI: 10.1002/(SICI)1098-240X(199610)19:5<421::AID-NUR6>3.0.CO;2-S.

How to cite this article: Katran HB, Akyüz N, Arpag N, Gür S. Evaluation of Self-Care and Self-Efficacy in Patients Experiencing Phantom Pain After Amputation. Clin Exp Health Sci 2024; 14: 296-303. DOI: 10.33808/clinexphealthsci.1105212