



Hemşirelerin iş yükü analizi

Analysis of the workload of nurses

Sevinç Mersin, İsa İpçioğlu, Gözde Koca

Bilecik Şeyh Edebali University,
Bilecik

Anahtar Kelimeler:
Hemşirelik işlemleri, profesyonel uygulamalar, iş yükü

Key Words:
Nursing procedures, professional approach, workload

Yazışma Adresi/Address for correspondence:
Sevinç Mersin,
Bilecik Şeyh Edebali University
sevinc.mersin@bilecik.edu.tr

Gönderme Tarihi/Received Date:
30.01.2018

Kabul Tarihi/Accepted Date:
03.04.2018

Yayımlanma Tarihi/Published Online:
06.10.2018

DOI:
10.5455/sad.13-1516710645

ÖZET

Giriş: Hemşireler, belirsiz iş tanımı ve onların fazla ve eşit olmayan hemşirelik iş yükü nedeniyle birçok zorlukla karşı karşıyadır. Hemşireler arasında iş yükünün adil dağılımının olmaması, hasta bakımının kalitesini ve hemşirelerin motivasyon düzeyini olumsuz yönde etkilemektedir. Bu nedenle, hemşirelerin iş yükünü analiz etmek çok önemlidir. **Amaç:** Farklı kliniklerde çalışan, her hemşirenin iş yükü puanlarının belirlenmesi amaçlanmıştır. **Yöntem:** Bu çalışma, retrospektif ve tanımlayıcı olarak yapılmıştır. Retrospektif veriler, Türkiye'deki bir hastanedeki 341 hastanın dosyalarından elde edilmiştir. Tanımlayıcı veriler için ise, 136 hemşireye "Sosyo- Demografik Form" ve "Likert tipte bir ölçek" (1: en hafif/kolay, 9: en zor/ağır) uygulanmıştır. **Bulgular:** Bu çalışmada en fazla iş yükünün, dahili kliniklerde çalışan hemşireler için olduğu belirlenmiştir. En zor/ağır hemşirelik işleminin, yenidoğanın, doğumdan anneye verilmesine kadar geçen sürede yapılan işlemler (7.33 ± 2.25) olduğu, en hafif/kolay hemşirelik işleminin ise, oksijen verme (2.77 ± 2.04) olduğu saptanmıştır. **Sonuç:** Bu çalışmanın sonuçları, hemşirelik işlemlerinin sayısal olarak değerlendirilmesi ile ilgili olarak hemşirelik alanına katkı sunmaktadır. Bu sonuçlar, hemşire yöneticiler için, hemşirelerin iş yükünü kolayca değerlendirebileceği bir rehber olabilir. Ayrıca çalışma, hemşireler için kayıt sisteminin önemini de vurgulamaktadır.

ABSTRACT

Background: Nurses face many challenges due to the unclear job description and the excess and unequal nursing workload on them. The lack of fair distribution of workload among nurses negatively affect the quality of patient care and motivation level of nurses. Therefore, conducting studies to analyze the workload of nurses is very important. **Objective:** It was aimed to determine the workload score of each nurse in different clinics. **Methods:** This study was conducted retrospectively and descriptively. The retrospective data of it was collected from the files of 341 patients at the hospital in Turkey. For descriptive data, 136 nurses were applied "Socio-Demographic Form" and "A Likert Scale (1: the lightest, 9: the most severe)". **Results:** In the present study, the maximum workload of a nurse was determined in the internal medicine clinics. While the most difficult nursing procedures were determined the time until the newborn is given to the mother (7.33 ± 2.25), giving O2 (2.77 ± 2.04) were determined the lowest difficult nursing procedures. **Conclusions:** The results should be of interest to nursing in the areas of nursing procedure's numeric values; and also, it may be a guide with which nurse manager may easily evaluate the workload of nurses. In addition, the importance of the record system was emphasized as well.

INTRODUCTION

Today, rapid developments and changes in the health services lead to the abandonment of the traditional understanding of healthcare and preferring more professional health services. In the health services managed with traditional methods, the quality of the services is not questioned and employees' mental state is ignored since the main purpose of these services is solving the problem. On the other hand, professional methods take maximum satisfaction of both patients and health personnel into account. While the traditional method does not give importance to the input and output costs, cost analyses are done by evaluating factors such as the duration and intensity of the work done by each individual in a professional

method. This, in turn, requires the establishment of evidence-based and objective criteria (Turkkan, 2014).

However, nurses face many challenges due to the unclear job description and the excess and unequal nursing workload of them. In particular, the lack of fair distribution of workload among nurses negatively affect the quality of patient care and motivation level of nurses. Therefore, conducting studies to analyze the workload of nurses is very important.

In this study, which was conducted to determine the workload of nurse, answers were researched to the following questions:

- What is the average degree of difficulty of the workload of a certain nursing procedure identified?

- What is the total workload score of nursing procedures presented in different clinics?
- What is the workload score of each nurse in different clinics?

In order to answer these questions, earlier studies conducted on the workload analysis of nurses in the literature were reviewed; and the general workload and the nursing workload procedures were identified; and then our study was conducted.

WORKLOAD

Although workload is a concept pointing to the density of the duties required to be completed by a certain job, it is also considered to be the source of stress. In addition, workload is considered to be as an opportunity for faster learning and development of staff (Gokkaya, 2014). The excessive workload may arise when workers are asked to fulfill too much duties in a limited time with limited resources (Ashfaq et al., 2013). Similarly, Leung and Chang (2002) stated that the excessive workload arises due to the insufficient time and resources given to the workers to fulfill their duties. The workload of the worker is in association with several factors such as attention reduction, extension of the response time, failure to fulfill all the duties, stress, fatigue and reduced performance (Dagdeviren et al., 2005). Vanishre (2014), who support these results, determined that the excessive workload and uncertainties increase the stress at work.

The excessive increase in stress levels of employees in an organization undermines the physical and mental systems and increases absenteeism, the rate of making mistakes and accidents; and reduces the job satisfaction of the employees. Too much stress can reduce the efficiency of the employees and organization (Gumustekin & Oztemiz, 2005).

Excessive workload leads to unintended consequences especially in smaller organizations (Chipunza & Samuel, 2012). Furthermore, this can cause workers to become mentally distant from the work, and leads to insensitivity (Inandi & Buyukozkan, 2013). This can lead to fatigue and burnout of employees (Razak et al., 2011). However, employees will not be happy in a work environment with high stress and burnout caused by excessive workload, and they may leave their jobs since they will not be happy about their jobs, and their performance will be reduced (Celik & Cira, 2013).

As a result of the workload studies, job descriptions and job requirements should be well-defined by performing a work analysis in order to reduce the workload of the employees. After determining job descriptions

and requirements, the number of employees required should be calculated and the rules should be created accordingly. Putting rules and conditions of the organization in writing, determining expectations of the employees hired and adaptation periods are the professional steps that can be used to prevent excessive workload.

WORKLOAD AND WORKLOAD ANALYSIS STUDIES IN THE NURSING PROCEDURES

In nursing, excessive workload, emotional stress, working with patients who are in need of intensive care and especially shift work make working conditions more difficult. Working in difficult conditions may increase the ratio of making mistakes by nurses (Demir Zencirci, 2010).

According to the studies conducted on shift work systems, such systems adversely affect physiological and psychological health, social life and personal safety of workers and patients (Eroglu, 2011). According to Carayon and Gurses (2008), one of the main problems of healthcare system in the world is heavy workload of the nurses working at hospitals. In addition, four main reasons of this heavy workload on nurses are stated as follows; constant increase in demand, insufficient number of nurses, decreasing the hospitalization days of the patients, reducing the number of employees and working overtime (Carayon & Gurses, 2008). The most important results caused by the heavy workload in nursing are patient safety violations and quitting the job. Therefore, one of the most critical steps is evaluating the workload in order to understand the relationship between them (Eroglu, 2011).

Studies on workload analysis regarding nurses in the world began in late 1950s. Considering the studies conducted on workload in our country, although many different models were developed in various professional groups, the number of workload analyses regarding nurses is very limited.

Considering the studies in the literature, the first workload scale was developed by Cooper and Harper [1969]. This scale was first used to assess the characteristics of an aircraft, and was then developed with a decision tree and co-dimensional 10-point scoring scale by Wierwille and Casali [1983]. This scale was used by Gomer et al. [1987] to examine the workload of an operator using keyboard, and by Hancock (1989) to examine the impact of workload on the intensity of interest (As cited, Dagdeviren et al., 2005). Keser (2006) investigated the relationship between workload levels and job satisfaction of employees working in a call center. Accordingly, it was

determined that their job satisfaction was affected by the workload. Their workload was found to be high and correspondingly their job satisfaction levels were found to be low. There are various studies that are conducted to determine and analyze the workload of nurses. But, most of these studies were conducted to determine the workload of nurses working in special units, such as intensive care units, burn centers.

Yildirim and Yilmaz (2004) conducted a study in order to determine the number of scrub and circulating nurses depending on procedures performed in a private hospital. They have conducted this study in an operating room with 9 operation tables for 6 months as a cross-sectional study. As a result, they determined that 23 nurses should be on duty each day and the total number of the nurses should be 29. Avci et al. (2013) conducted a study in order to determine the workload of nurses working at general, coronary and cardiovascular surgery intensive care units of a private hospital. As a result, it was reported that nurses spent 37% of their time on direct patient care procedures in the day shifts, whereas they spend 34% of their time on direct patient care procedures in the night shifts. On the other hand, they spent 15% of their time on duties out of their responsibility in the day shifts, and spent 19% of their time on duties out of their responsibility in the night shifts. Balanuye (2014) aimed to determine the effect of workload of nurses working at surgery clinics on patient safety. The effect of workload of nurses on patient safety is as follows: Reduced time spent for the patient, reduced precautions and fatigue due to the heavy workload, and increased risk of making mistakes caused by lack of attention. The average workload scores of responsible nurses were found to be lower than the scores of other nurses. Queeijo et al. (2013) discussed the workload of nurses working in the Neurological Intensive Care Units and identified independent factors associated with workload of nurses. As a result, it was determined that an effective workforce scheduling is very important in meeting the needs of patients. Carmona-Monge et al. (2013) evaluated the workforce of nurses by using two different scales. They compared the personnel requirements in these scales. As a result, they found that there was a need for more manpower in one of the scales compared to the other one. Ravat et al. (2014) conducted a one-month study on the workload and working times of nurses working at a burn center with 15 bed capacity. They could not optimize the working times of nurses since they spent an important portion of their times with administrative tasks and supervision. One of the most important reasons of spending time was the structure of the building. Hurst (2005) investigated the relationship between patient adherence, nursing workload and quality. As a result,

the nursing activities and differences between high and low-quality rooms were highlighted. Also, de Jong et al. (2009) developed a scale to determine the nursing workload in burn care. They took the type, size, depth and location of burn into account while developing the scale.

Although there are different studies to determine nursing workload, no nursing workload score has been determined in any of these studies. We aimed to determine the workload of nurses in different clinics at the hospital in Turkey. In this study, both the workload score of each nursing procedures and the monthly workload score of a nurse who carries out the nursing procedures were calculated.

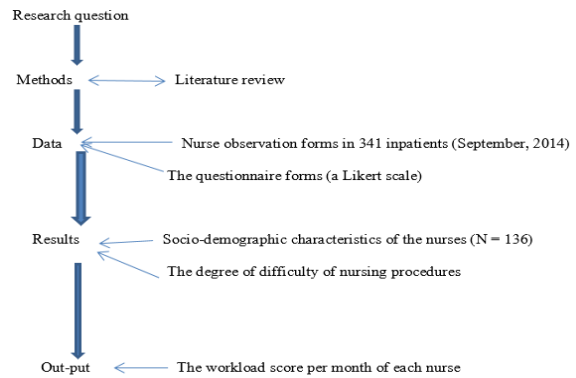


Figure 1. The Study Plan

MATERIALS AND METHODS

This study was conducted retrospectively and descriptively in order to determine the workload analyses of nursing procedures of the state hospital in Turkey. This study received necessary ethics approval from the Ethics Board at the University where it was conducted.

This state hospital where data are retrospectively collected is located in the city center. The bed capacity of the hospital is 100, and there are 482 employees. The inpatient departments at the hospital are internal medicine clinics, surgery clinics, gynecology and obstetrics clinic and pediatrics clinic. Internal medicine clinics consist of internal medicine, neurology, physical medicine and rehabilitation, gastroenterology, cardiology, pulmonology and psychiatry departments. Surgical clinics consist of general surgery, orthopedics and traumatology, thoracic surgery, cardiovascular surgery, neurosurgery, ophthalmology and otorhinolaryngology departments. The nursing procedures constituting the material of the study were determined by examining the nurse observation forms

in files of 341 inpatients in September 2014 in the internal medicine clinics, surgery clinics, gynecology and obstetrics clinic and pediatrics clinic in the state hospital. This date chosen was used simple random sample. By using the nursing procedures in the nurse observation forms in 341 patient file, a 9-Point Likert scale (1: the lightest, 9: the most severe) was prepared to determine the degree of difficulty of the nursing procedures in which each nursing procedure took place. After clarifying the purpose of studying the 300 accessible nurses working in the city where the work was located, the socio-demographic forms and 9 Likert type scale were conducted by the approval of the 136 nurses who agreed to participate in the work between April and June 2015.

The degree of difficulty of each nursing procedure was determined by evaluating the scores given to each nursing procedure. The number of nursing procedures on the nurse observation forms in the patient files was multiplied by the degree of difficulty determined for each nursing procedure. Then, to determine the nursing workload, the total score for each clinic of all nursing procedures in the patient files was calculated; the total scores were divided into the number of nurses in these clinics in September 2014, and the number of nursing workload score per month was determined.

Between these dates, there were 14 nurses and 1 charge nurse in the internal medicine clinics, 15 nurses and 1 charge nurse in the surgery clinics, 4 nurses and 1 charge nurse in the gynecology and obstetrics clinic and 4 nurses and 1 charge nurse in the pediatrics clinic at the hospital. Charge nurses were excluded because of their managerial responsibilities while calculating the total score for each nurse.

The data of the research were assessed by using the SPSS 17.00 Statistical Software with frequency and average values.

The workload score of a nurse was calculated monthly according to the following formula (1):

$$W.S._k = \frac{\sum_{i=1}^7 (x_i \cdot s_i)}{n_k}$$

(1)

$W.S._k$ = k . is workload score of a nurse working in the clinic

n_k = k . is the number of nurses in the clinic

k = 1, 2, 3, 4

x_i = i . is the degree of difficulty of the procedure

s_i = i . is the number of taking part in the procedure

i = 1, 2, ..., 77

The workload score per month for each nurse was found by dividing the multiplication of the degree of difficulty of each procedure and the number of implementing the procedure into the number of the nurses in each clinic. The number of clinics included in the study was 4 and the number of procedures were 77.

RESULTS

In this study, the responses of 136 nurses were used to determine the degree of difficulty of the nursing procedures in the hospital. Socio-demographic characteristics of the nurses are given in Table 1.

Table 1. Socio-demographic Characteristics of the Nurses (N = 136)

Groups	n	%
Age (34.1±6.5)		
25 years old or less	19	14.0
26-30 years old	18	13.2
31-35 years old	39	28.7
36-40 years old	44	32.4
41 years old or above	16	11.8
Job experience (12.6±7.4)		
5 years or less	30	22.1
6-10 years	34	25.0
11-15 years	27	19.9
16-20 years	26	19.1
21 years or above	19	14.0

14% of the participants were 25 years old and less, 13.2% were between the age of 26 to 30, 28.7% were at the age range of 31 to 35, 32.4% were at the age of 36 to 40 and the remaining 11.8% of the participants were 41 and above. 22.1% of the participants had a job experience of 5 years and less, while 25% of them had 6-10 years' experience, 19.9% of them had 11-15 years' experience, 19.1% of them had 16-20 years' experience and the remaining 14% had 21 years' experience and over.

The information about the clinics where patients were hospitalized in September 2014 is given in Table 2.

Table 2. Clinics and number of patients

Clinics	n	%
Internal Medicine Clinics	148	36.4
Surgical Clinics	192	46.0
Gynecology and Obstetrics Clinic	71	15.2
Pediatrics Clinic	8	2.4
Total	419	100

The patients who were hospitalized in the clinics at the hospital are given in Table 2, and the majority of them were in surgery clinics with 46%, while 36.4% were in internal medicine clinics, 15.2% were in gynecology and obstetrics clinic, and 2.4% were in pediatrics clinic.

In Table 3, the descriptive statistics of the degree of difficulty of nursing procedures are given.

The most difficult procedures performed by nurses according to the degree of difficulty of these procedures were determined to be the time until the newborn is

Table 3. The Degree of Difficulty of Nursing Procedures

Procedures	Average	Standard Deviation	Procedures	Average	Standard Deviation
Time until the newborn is given to the mother	7.33	2.25	Iv fluid tracking (For kids and babies)	4.02	2.57
Vaginal exam	7.00	2.21	Exercise monitoring	4.00	2.53
Vaginal delivery	6.75	2.89	Supplying ordered drugs	3.98	2.37
Vaginal suppository application	6.17	2.12	Giving information to the patients' relatives	3.98	2.32
Vaginal intradermal drug use	6.05	2.32	Drug use by nebulizer (For kids and babies)	3.97	2.58
Child heart rate monitoring	6.00	2.35	Subcutaneous drug use (For kids and babies)	3.92	2.55
Helping for breast feeding	5.95	2.66	Eye/ear drop use	3.91	2.23
General condition monitoring for kids and babies	5.90	2.40	Helping patients' personal care	3.86	2.31
Giving blood components to the patient	5.84	2.36	Meeting patient after surgery	3.84	2.31
Conscious/consciousness examination	5.82	2.59	Giving oral drugs (For kids and babies)	3.83	2.62
Phototherapy and monitoring	5.75	2.34	Monitoring and Follow-up of the Patient	3.79	2.64
Layman	5.64	2.59	Training before, during and after surgery	3.74	2.34
Checking NST	5.44	2.53	Preparing the room of patient	3.72	2.30
Application of Bilevel Positive Airway Pressure	5.36	2.70	Applying gel to the skin	3.71	2.53
Arterial blood gas monitoring	5.31	2.99	Writing treatments to the note	3.70	2.53
Inserting a nasogastric	5.29	2.77	Following Saturation	3.67	2.75
Inserting a nasogastric (For Kids and Babies)	5.27	2.88	IV fluid follow-up	3.62	2.85
Baby eye/navel care	5.24	2.73	Visit (Doctor or nurse visit)	3.61	2.47
Establishing intravenous access (For Kids and Babies)	4.99	2.74	Establishing intravenous access	3.60	2.67
Venesection (For Kids and Babies)	4.91	2.72	Venesection	3.60	2.66
Inserting the urinary catheter or urinary bag (For Kids and Babies)	4.77	2.76	Sending patient to the surgery	3.57	2.24
Acceptance to the clinic (Admission)	4.74	2.93	Observing the patients diet	3.55	2.14
Inhaler drug use	4.73	2.43	IV application	3.53	2.80
Aspiration	4.52	2.73	Discharge	3.52	2.38
Consultation follow-up of the patient	4.39	2.29	ECG monitoring	3.50	2.51
Inserting the urinary catheter	4.37	2.67	Giving O2 (For Kids and babies)	3.46	2.39
Cold application/hot application	4.36	2.04	Going to patients' room and patients' check-up	3.45	2.62
Dressing	4.35	2.63	Fever, Pulse, Blood Pressure (For kids and babies)	3.42	2.34
Resistance monitoring after surgery	4.31	2.25	Blood glucose measurement (For kids and babies)	3.36	2.35
IM medication administration (For Kids and Babies)	4.28	2.54	Controlling the sanitation of the area of surgery	3.35	2.05
Preparing for surgery (File control)	4.26	2.50	IM drug use	3.31	2.20
IV applications (For Kids and Babies)	4.25	2.54	Putting medication to the serum	3.28	2.30
Sending patient to examination	4.22	1.95	Drug use by nebulizer	3.19	2.37
Monitoring and Follow-up of the Patients (For Kids and Babies)	4.17	2.66	Fever, Pulse, Blood Pressure	3.05	2.24
Patient follow-up	4.15	2.59	Subcutaneous drug use	3.05	2.33
Following Bleeding	4.14	2.51	Blood glucose measurement	2.95	2.38
Making the patient walk after surgery	4.11	2.29	Giving oral medication	2.89	2.32
Giving information to the patient	4.10	2.45	Giving O2	2.77	2.04
Giving positions	4.10	2.52			

given to the mother (7.33 ± 2.25), vaginal exam (7.00 ± 2.21) and vaginal delivery (6.75 ± 2.89), respectively. The lowest averages according to the degree of difficulty of these procedures were determined to be giving O₂ (2.77 ± 2.04), oral medication (2.89 ± 2.32), blood glucose measurement (2.95 ± 2.38), respectively.

In Table 4, the workload scores of nurses working in the internal medicine clinics, surgery clinics, gynecology and obstetrics clinic and pediatrics clinic are given. The formula given in the materials and methods section was used to calculate the workload scores.

As it can be seen in Table 4, internal medicine clinics have the maximum workload score per month as 1305 points, while the lowest score was found for pediatrics clinic with 99 points. Finally, workload score per month was found to be 761 points for surgery clinics and 617 for gynecology and obstetrics clinic, respectively.

Table 4. Workload Score Per Month for Each Nurse in the Clinics

Clinics	Workload of each nurse
Internal Medicine Clinics	1305
Surgical Clinics	761
Gynecology and Obstetrics Clinic	617
Pediatrics Clinic	99

DISCUSSION AND CONCLUSION

In this study, fundamentally, the nurse observation forms in patient files were evaluated using the results obtained from these forms. Considering the earlier studies in the national and international literature, the number of studies discussing this matter seems to be very limited. These studies seem to be conducted on closed systems such as intensive care and burn units as well as surgery rooms. One of these studies was determined that nurses spent 37% of their time on direct patient care practices in the day shifts, whereas they spent 34% of their time on direct patient care practices in the night shifts (Avci et al., 2013). In another study, the number of nurses that must work in operating rooms was determined (Yildirim & Yilmaz, 2004). These studies have not determined the nursing workload score. Our study determined the workload of the nurses. In addition, the difficulty ratings perceived by nurses for nursing procedures were determined. In the study by Kang et al. (2016) and Duffield et al. (2006) the nurse-patient ratios, the numbers of patient fall, and patient satisfaction were investigated. In these studies, there was only the patient benefit issue. In our study, it was revealed that the perceptions of the nurses are also important. In fact, in our work, we did not only quantitatively calculate the workload but

also performed a qualitative assessment. Because, in calculating the nursing workload, the nurse is evaluated in terms of psychological characteristics. In these studies, usually only the patient benefit is evaluated. In our study, it was revealed that the perceptions of the nurses are also important. Every nurse participating in the study revealed the degree of difficulty perceived by them at work. Because the difficulty perceived for each nursing process is not merely related with what the process is. Such difficulties also involve the experiences of nurses throughout their professional lives.

In this study, it has been determined that the number of difficulties in each nursing procedure should be determined not by the number of procedures performed by nurses and by the number of patients, but by the nursing process itself. Although the number of nursing procedures in some cases is very high, it is necessary to evaluate each process together with the difficulty level since the difficulty level of these tasks is different. According to the results of our research, comprehensive nursing interventions applied to patients and the interventions that have higher risks for the health of patient are more difficult. In addition, the difficulty level of the procedures for the mother and the baby was high, especially, in the concerns about birth dimension. However, the level of difficulty of some technical procedures such as oxygenation and oral medication was lower. For this reason, nurses should be assigned considering the results of workload analysis. This can increase patient satisfaction and patient safety, and reduce costs.

Considering the results of our study, it has been concluded that nurses working at internal medicine clinics have more workload compared to other nurses working in other clinics. There were some missing data about the procedures applied in surgery clinics. For instance, although the nurse observation forms showed the inpatients who received pre-operation or post-operation treatments, the data regarding this information were rarely recorded. Nurses have many responsibilities about the patient who will be operated. Some of these responsibilities are informing the patient, prosthesis control, urinary excretion (without follow-up) and checking the area of surgery. However, most of these procedures are not recorded in nurse observation forms. The higher workload of nursing procedures in the internal medicine clinics may be due to the necessity of recording recommendations of the doctors into nurse observation forms. Because chronic patients hospitalized and receiving treatments for long time in the internal medicine clinics are recommended to switch their positions regularly and this procedure is recorded in the nurse observation forms. Therefore,

the workload score of these nurses increase. On the other hand, the number of the patients hospitalized in gynecology and obstetrics clinics and pediatrics clinics was very limited during the time when we conducted our study. In the earlier studies, some procedures such as answering the phone, creating the inventory and recording the data were considered as nursing procedures (Avci et al., 2013). In this study, these are not considered as nursing procedures.

This study was conducted by examining the workload scores of nurses working at the hospital. Therefore, the results obtained from this study cannot be generalized.

Recommendations that can be provided in line with this work are as follows:

- Having better records of the patients by nurses and using technological tools that can facilitate to record the data;
- With this study, especially a more equal workload to be provided is aimed by utilizing the difficulty grades and workload scores of the nursing procedures determined in the planning of nurse appointments to the clinics. Therefore, in the case of nurse in clinics, not only the number of nursing procedures performed but also the difficulty levels of nursing procedures should be considered;
- As suggested by Giovannetti and Mayer (1984) as well as by Whitney and Killien (1987) and specified in the relevant literature, the workload of nurses in the clinics must be updated every six months;
- This study will cast light on the way on which each nurse's workload score is calculated and the difficulty level of each nursing process is determined in the literature.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

FUNDING

No

ACKNOWLEDGEMENTS

We thank to all the participants in our study.

REFERENCES

1. Ashfaq, S., Mahmood, Z., Mehboob, A. (2013) Impact of work-life conflict and work over load on employee performance in banking sector of Pakistan. *Middle-East Journal of Scientific Research*, 14(5), 688-695.
2. Avci, G. G., Türker, S., Çiftçi, M., Sürücü, Ş. (2013). Yoğun bakım hemşirelerinin iş yükünün belirlenmesi. *Yoğun Bakım Dergisi*, 4, 21-24.
3. Balanuye, B. (2014). The effects of workloads of nurses whom work in surgical clinics on patient safety. (Unpublished master thesis). Ankara: Baskent University Health Science Institute.
4. Carayon, P., Gürses, A. (2008). Nursing Workload and Patient Safety-A Human Factors Engineering Perspective. Agency for Healthcare Research and Quality US Department of Health and Human Services. Patient Safety and Quality: An Evidence-Based Handbook for Nurses. AHRQ Publication: Rockville.
5. Carmona-Monge, F. J., Rodriguez, G. M. R., Herranz, C. Q., Gomez, S. G., Marin-Morales, D. (2013). Evaluation of the nursing workload through the nine equivalents for nursing manpower use scale and the nursing activities score: a prospective correlation study. *Intensive and Critical Care Nursing*, 29(4), 228-233.
6. Celik, M., Cira, A. (2013). The mediating role of work overload on the effects of organizational citizenship behavior on job performance and turnover intention. *Ege Academic Review*, 13(1), 11-20.
7. Chipunza, C., Samuel, M. O. (2012). Effect of role clarity and work overload on perceptions of justice and job in security after downsizing. *Journal of Social Sciences*, 32(3), 243-253.
8. Dagdeviren, M., Eraslan, E., Kurt, M. (2005). A model to determine overall workload level of workers and its applications. *J. Fac. Eng. Arch. Gazi Univ*, 20(4), 517-525.
9. de jong, A. E., Leeman, J., Middelkoop, E. (2009). Development of a nursing workload measurement instrument in burn care. *Burns*, 35(7), 942-948.
10. Demir Zencirci, A. (2010). Nursing and Malpractice. *Turkish Journal of Research & Development in Nursing*, 12(1), 67-74.
11. Duffield, C., Roche, M., Merrick, E. T. (2006). Methods of measuring nursing workload in Australia. *Collegian*, 13(1), 16-22.
12. Eroglu, E. (2011). Determination of workload's effect on patient safety in a training and research hospital. (Unpublished master thesis). Ankara: Atılım University Social Sciences Institute.
13. Giovannetti, P., Mayer, G. G. (1984). Building confidence in patient classification systems. *Nursing Management*, 15(8), 31-35.
14. Gokkaya, O. (2014). Work-life balance in local government and employee conduct investigation of relationship "Example of Kocaeli Municipality". *Electronic Journal of Occupational Improvement and Research*, 2(3), 1-18.
15. Gumustekin, G. E. Oztemiz, A. B. (2005). Productivity and performance interaction with stress of organizations, *Journal of Çukurova University Institute of Social Sciences*, 14(1), 271-288.
16. Hurst, K. (2005). Relationships between patient dependency, nursing workload and quality. *International Journal of Nursing Studies*, 42(1), 75-84.
17. Inandi, Y., Buyukozkan, A. S. (2013). The effect of organizational citizenship behaviours of primary school teachers on their burnout. *Educational Sciences: Theory & Practice*, 13, 1545-1550.
18. Kang, J. H., Kim, C. W., Lee, S. Y. (2016). Nurse-perceived patient adverse events depend on nursing workload. *Osong Public Health Res Perspect*, 7(1), 56-62.
19. Keser, A. (2006). Çağrı merkezi çalışanlarında iş yükü düzeyi ile iş doyumunu ilişkisinin araştırılması, *Kocaeli Üniversitesi, Sosyal Bilimler Enstitüsü Dergisi*, 1, 100-119.
20. Leung, A. S., Chang, L. M. (2002). Organizational downsizing: Psychological impact on surviving managers in Hong Kong. *Asia Pacific Business Review*, 8(3), 76-94.
21. Queeijo, A. F., Martins, R. S., Andolhe, R., Oliveira, E. M., Barbosa, R. L., Padilha, K. G. (2013). Nursing workload neurologically intensive care units: Cross-sectional study. *Intensive and Critical Care Nursing*, 29(2), 112-116

22. Ravat, F., Percier, L., Akkal, R., Morris, W., Fontaine, M., Payre, J., Poupelin, J. C. (2014). Working time and workload of nurses: The experience of a burn center in a high income country, *Burns*, 40(6), 1133-1140.
23. Razak, A. Z. A. A., Yunus, N. K. Y., Nasurdin, M. (2011). The impact of work overload and job involvement on work-family conflict among Malaysian doctors. *Labuan e-Journal Maumalat Soc*, 5, 1-10.
24. Turkkkan, N., Bacaksız, F., Tuna, R. Güdüleme, (Ed.) Baykal, Ü., (2014). Türkmen E. Hemşirelik Hizmetleri Yönetimi, İstanbul: Akademi Basın ve Yayıncılık.
25. Vanishree, P. (2014). Impact of role ambiguity, role conflict and role overload on job stress in small and medium scale industries. *Res J Manage Sci*, 3(1), 10-13.
26. Whitney, J. D., Killien, M. G. (1987). Establishing predictive validity of a patient classification system: A critical issue in patient classification is establishing and measuring predictive validity of the system used. *Nursing Management*, 18(5), 80-86.
27. Yildirim, D., Yilmaz, S. (2004). Measurement of daily staffing in an operating room, *Journal of Research and Development in Nursing*, 1(2), 15-27.